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the TRAVELLERS' Digest

Number 13

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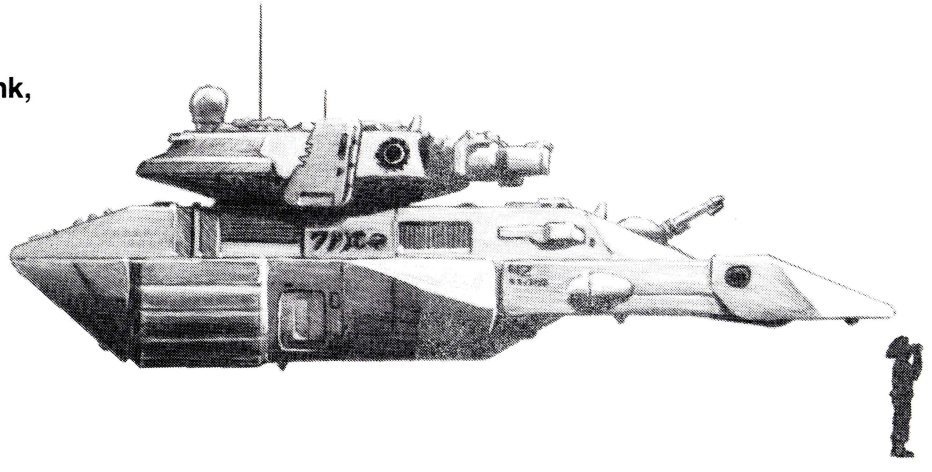

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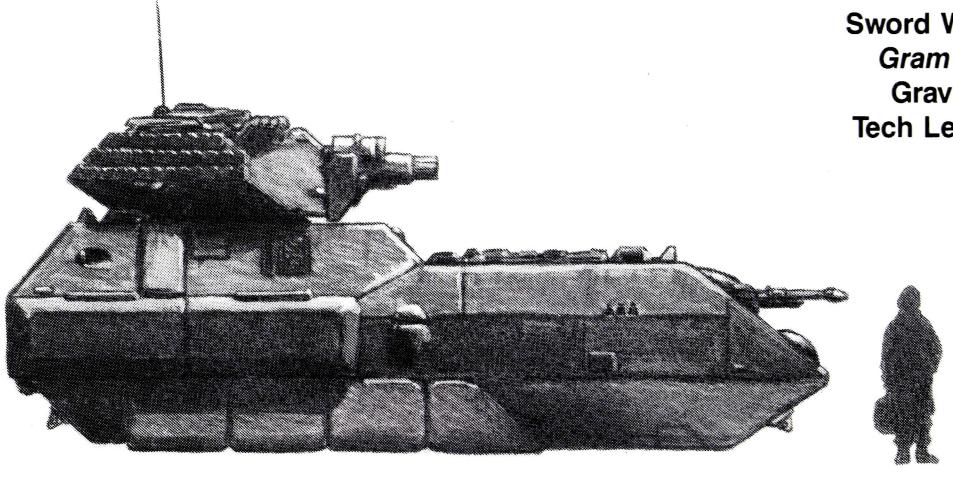

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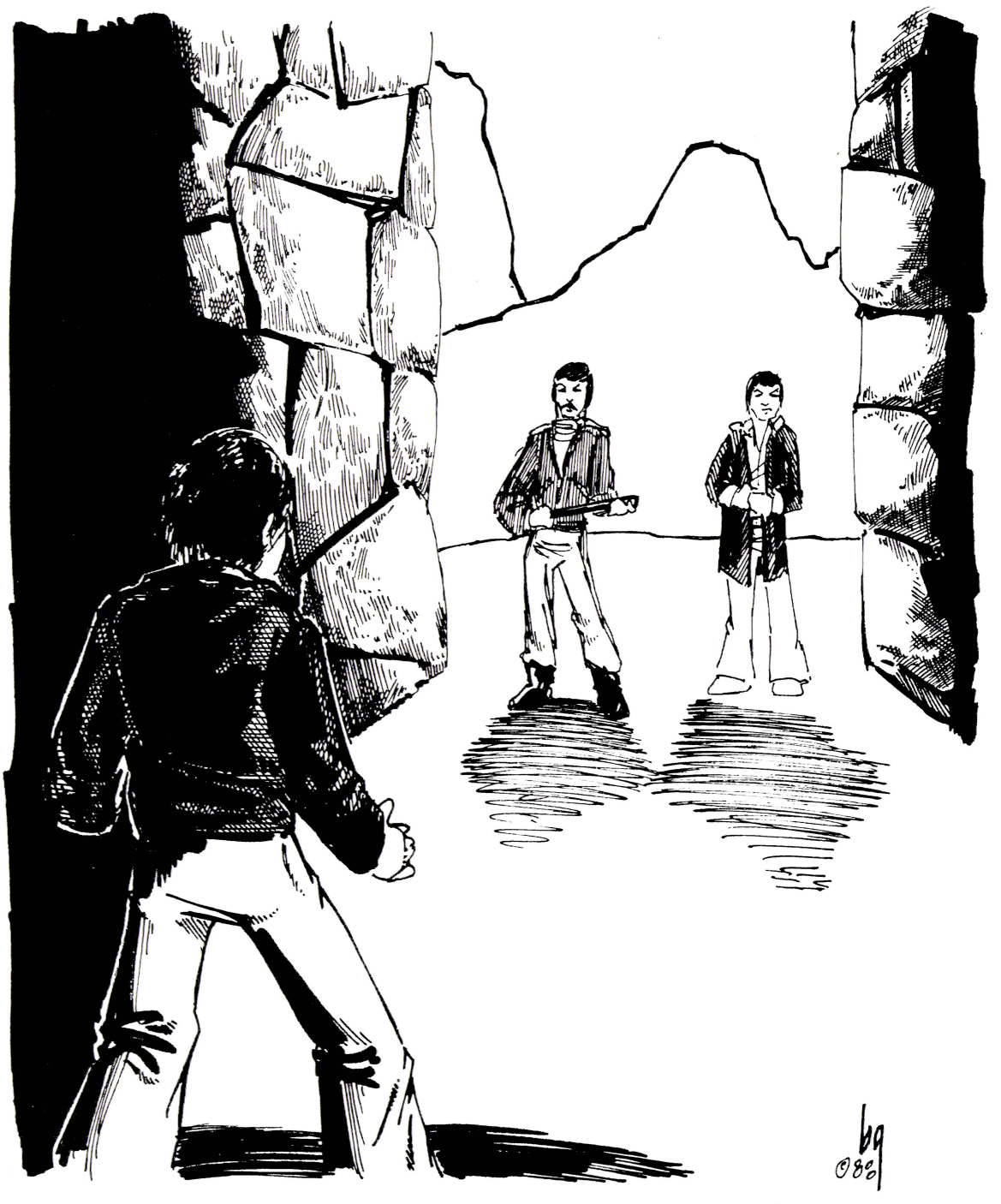
Terra Incognita
FEATURE ADVENTURE



"Having crossed the Imperium from one end to another, I reached Terra, where all the human races had their start. I expected to find something of myself here somewhere, but it's true what they say: you can't go home again."
—Akidda Laagiir, from "What Once Was Earth" in the *Travellers' Digest*, 1108

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Editors' Digest

FROM THE DESKS OF GARY L. THOMAS AND JOE D. FUGATE SR.

This issue of the *Travellers' Digest* is incredible. Seriously: count the pages; you'll find that this is the biggest issue we have ever published. Look over the list of authors and illustrators, and you'll see that we've included all of **Traveller's** very best. And check out the table of contents: *Travellers' Digest* has come back to earth.

Terra, in what we would call our 57th century, is a fascinating place. We have a complete system survey article detailing not only Terra but also its neighbors in the solar system. Dolphins have been "geneered" for intelligence, much the way Vargr were, and we have the full story in an "alien" race article. The Imperial Marine forces holding the peace after the Solomani Rim War are described in a third article. Our feature adventure, "Terra Incognita", ties these threads together into one very neat and very exciting package. And the library data entries for Solomani Rim Sector open up other adventuring possibilities near Terra.

The rest of the issue is no slouch, either:

A new column, "Rebel Reporter", brings you the latest in pro-Dulinor propaganda. Should this man sit on the iridium throne? Don't decide until after you've read this article.

Our regular "Gaming Digest" in this issue walks you step by step through a starship design example for **MegaTraveller**. Is it authentic? Trust us: we got the guy who wrote the rules to write the example. And it's a real doozy. A small vessel wouldn't satisfy us. We insisted on a big one — and 75,000 tons fit the bill perfectly.

Our "Medical Digest" continues from where we left off last time, providing you official **MegaTraveller** rule flowcharts for bionics, prosthetics, cloning, and all those other goodies you want when your character's arm gets in the way of an FGMP-15.

"**Traveller** Q&A" answers your questions in the most official way possible: each is checked personally by Marc W. Miller, designer of **Traveller**.

Finally, our **2300 AD** section (which shrunk to only two pages in this issue because of all the Terra info) features a fascinating historical description of Pentapod starships — part one of a two-part article. These masters of genetics have succeeded in creating *living* starships. Go on, take one for a drive!

Author, Author! Those of you who have sent a self-addressed stamped envelope for a copy of our contributors' guidelines might like to do so again. We have substantially revised them, and added an editorial calendar that should help you to plan your submissions better. (Incidentally, if you think you could write an incredible piece on "Starships of the American Arm", don't delay — we need you now. We've promised this piece for two issues now, but our original author has decided to write for another game for the time being.)

Coming Soon to a Gamestore Near You: You might notice that with this issue, *Travellers' Digest* is back on schedule. The reason you should let up a cheer at this news is that this means we now have time to focus on an array of products for the rest of this year.

But first a word from our sponsor: in the three years we have been in business, we have never had a price increase. The magazine you are reading, in particular, is now over twice the size it originally was, and still sells for only $3.95 or $14.00 for a one-year subscription. We're continuing to hold the line on the magazine (a miracle, believe us), but we now find that we must raise the prices on some of our books. But this isn't all bad news: keep reading.

101 Vehicles should reach your stores about two weeks after you see this, at a price of $7.95. Those of you who have already ordered at the old price (sorry, too late now!) will receive your book soon, at the old price. This is our humble way of saying "thanks for patiently waiting while we got the book ready".

Starship Operator's Manual, available in mid-August, is in production hot and heavy, slated for a price of $8.95. (Yes, if you pre-ordered, you'll save big bucks.) This book will have 50% more material than originally planned. (We couldn't get everything we wanted to fit, so we forced it!)

Grand Explorations, an all-new concept in **Traveller** publications, takes you beyond explored space: the Zhodani core expeditions, the realms beyond the Solomani Rim, the Hiver Federation Development Agency explorations, and more. Look for this, the biggest book we have ever published, early next year.

There. That should satisfy you for a while.

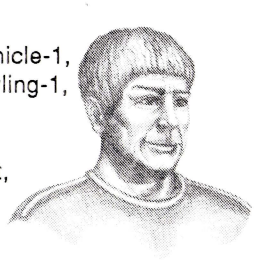
GENCON/ORIGINS 88: This year's big game convention will be held August 18-21 in Milwaukee, Wisconsin. We'll be there in full force this year, right next to GDW. Plan to join us if you can. Write for full details from 1988 GENCON/ORIGINS Game Fair Headquarters, P.O. Box 756, Lake Geneva, WI 53147

Errata: We failed to properly credit Henry Neufeld last issue for his authorship of the Inthra world data for the feature adventure. (Sorry, Henry. You deserved better.)•

THE CHARACTERS

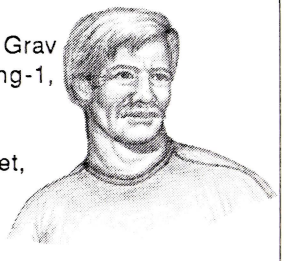
This adventure is intended for the characters listed below. Even though the characters listed are all male, feel free to change any or all of the genders as desired. The character data are listed using the **MegaTraveller** format.

Akidda Laagiir, Journalist



858AAB age 45 6 terms Cr 21,000
Interview-5, Streetwise-3, Grav Vehicle-1, Wheeled Vehicle-1, Admin–1, Brawling-1, Computer-0
Holocrystal Recorder
Starport A, Large, Dense Atm, Wet, High Pop, Mod Law, High Stellar
Born: 319-1059

Dur Telemon, Ex-Scout

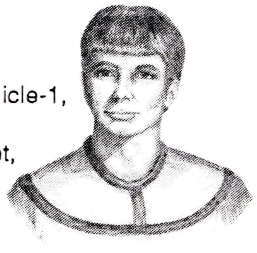


B7A85B age 37 3 terms Cr10,000
Auto Pistol-3, Survival-2, Pilot-1, Grav Vehicle-1, Engineer-1, Gambling-1, Brawling-1, Computer-1
Auto Pistol
Starport A, Large, Dense Atm, Wet, High Pop, Mod Law, High Stellar
Born: 038-1068

Dr. Theodor Krenstein, Scientist

495FCB age 61 10 terms Cr 300,000
Robotics-5, Leader-3, Electronics-2, JOT-2, Laser Rifle-1, Grav Vehicle-1, Medical-1, Mechanical-1
Hand Computer (TL15), Electronic Tool Kit, Robot AB-101
Starport A, Small, Vacuum Atm, Wet, High Pop, Mod Law, High Stellar
Born: 173-1043

Aybee Wan Owen, Valet



Apparent Stats:
8D9C7B age 19 0 terms Cr 0
Medical-1, Linguistics-1, Grav Vehicle-1, Laser Welder-1
Starport A, Small, Vacuum Atm, Wet, High Pop, Mod Law, High Stellar
Born: 049-1081
Actual Robot Profile:

AB-101, Pseudobiological Robot

Constructed in 1091 by Dr. Theodor Krenstein
561x2-A2-PM327-FDC7(J) Cr11,970,600 319kg
Fuel=78.1 Duration=21.7 TL=15
7/17 (Jack)
Head (10%), 2 Lt arms
2 Eyes (+1 light intens), 2 ears, voder, touch sensors
Pwr int, brain int, TL 15 holo recorder, Lt laser welder
Medical-1, Linguistics-1, Grav Vehicle-1, Valet-1, Laser Welder-1, Rescue-1, Emotion Simulation

PLAYING THE CHARACTERS

Some of an adventure's most memorable moments are those that occur as the players play out their characters' roles in a believable manner. To aid in this, we provide the following background details and roleplaying pointers for the player characters.

AKIDDA LAAGIIR

Position: Current recipient of the *Travellers' Digest* Touring Award.

Akidda Laagiir started at age 18 as a copy boy with the *Mora World Review*; his friendly face and ability to gain the trust of others contributed to his steady career progress.

Living on Mora, with its charismatic dictator, the Duchess Delphine the Matriarch, is sometimes a trying experience for any journalist, which may explain his occasionally iconoclastic actions. He is slightly prejudiced against "the system", preferring fresh ideas and fresh ways of doing things. This boldness (especially in interview situations) has also contributed favorably to his career.

His admin skill was learned while moving up the ranks, but it is a skill that he would just as soon not need: he much prefers cutting through to the heart of a situation. While he is sensitive to the needs of others, he has a well developed self-preservation instinct that allows him to quickly adapt to a strange locale or culture — a skill that has saved his neck on more than one occasion.

Like most writers, he is consumed with curiosity, and when the *Travellers' Digest* journalism contest was held again in 1098, he was among the first to apply. His piece was entitled "The Imperial Frontier: The Next Millenium". In it, he discussed the spinward frontier sectors of Deneb, Spinward Marches, Trojan Reach, and Reft as well as their role in shaping the growth of the Imperium in the next 1,000 years. On 258-1099, he received the announcement that he had won the coveted *Travellers' Digest* Touring Award.

Akidda has been travelling and submitting articles of his travels for over five years.

Roleplaying Notes: Akidda's strong interview skill indicates he has a real nose for a good story: to play him otherwise would be untrue to his character. His natural curiosity makes him likely to pursue "trouble" rather than run from it.

The counterbalance to Akidda's tendency to seek out such trouble is his streetwise skill, which enables him to lessen the harmful results of an otherwise awkward situation. His streetwise skill may enable him to "stumble" onto a valuable source of information the others would overlook.

Keeping this in mind, the referee should use the NPCs encountered by Akidda as those with the most valuable information to the group, as a result of Akidda's abilities. Akidda's phenomenal interview-5 skill gives him tremendous insight when dealing with people.

DUR TELEMON

Position: Ex-Scout (on reserve status).

Dur Telemon was *born* into the Scout Service. His father was in the Scout Service while Dur was growing up, and both of his grandfathers had served in the Scouts in their younger days. Dur enjoyed nothing more as a boy than to sit and listen to their tales of adventure.

The Fourth Frontier War broke out when Dur was a teenager — his father's service in the war was a source of pride for the entire family and deepened Dur's love for the Scouts.

Dur's individualistic nature meshed well with his duties in the Exploration Office of the Scout Service. In his first term, a "routine" mapping expedition on Pannet/Rhylanor

suddenly turned into a hostage rescue operation, and it was then that Dur happened to save Dr. Krenstein's life. Neither of them is overly emotional about it, but it was that initial chance encounter that grew into a respect and friendship between the two men over the years.

Dur's second and third terms were spent in District 268 and Five Sisters Subsectors doing various planetary surface and orbital surveys. During these surveys, Dur learned much about staying alive and living off the land in unusual environments. Halfway through his fourth term, he was transferred from his field post in the Exploration Branch to a bureaucratic position in Fleet Support.

Dur has resigned from the Scouts and has been travelling with his uncle, Akidda Laagiir.

Roleplaying Notes: Dur is the brash adventurer of the group and as such he is the least likely to fear physical confrontations or physical discomfort. He is also the most likely of the group to act without giving due consideration to the consequences. He has genuine concern for others and is the most likely to risk his life to save someone.

DR. THEODOR KRENSTEIN

Position: Graz Redniz Chair of Computational Robotics at Rhylanor Institute of Technology — on sabbatical leave.

Dr. Theodor Krenstein is a gifted, multi-talented scientist, with interests from anthropology and archaeology to xenology and zoology, including most of the "ologies" in between.

Born on the planet Rhylanor, he entered the Rhylanor Institute of Technology at the age of eighteen, eventually receiving advanced degrees in computer science and robotics. He went on to serve three terms as Dean of the School of Robotic Science at RIT, after which he was appointed to the Graz Redniz Chair of Computational Robotics, a prestigious and coveted position. He is the author of 12 holocrystal publications and over 100 articles in technical and scientific journals, in addition to holding more than 250 Imperial military patents for his inventions and robotics work. Despite his academic success, he has become bored with what he has been doing, and realizing his age, took an extended sabbatical from teaching in order to make forays through Deneb Sector.

Among his many pursuits, Dr. Krenstein has aided the Scouts in developing robots for planetary surface surveys. During a test in 1090 on Pannet/Rhylanor, members of a disgruntled anti-technist group kidnaped Dr. Krenstein and threatened to kill him if the Scout Service didn't meet their demands. A young Scout named Dur Telemon was part of the all-volunteer raiding team that finally freed Dr. Krenstein; in fact, Dur was the first to reach the doctor.

After this incident, the doctor constructed his servant, bodyguard, and experiment in synaptic learning, "Aybee".

Dr. Krenstein has been travelling with Dur Telemon and Akidda Laagiir since their chance meeting five years ago.

Roleplaying Notes: Dr. Krenstein, the "Mr. Fix-it" of the group, contributes valuable analytical skills. Together with Aybee, the doctor may contribute unusual insights Dur or even Akidda might otherwise overlook.

The doctor is slightly mischievous in the manner in which he conceals Aybee's true robotic nature — a source of much fun if roleplayed completely. The doctor seeks new experiences and knowledge for both his robot and himself, so he will pursue adventure suggestions readily.

Keep the doctor's age in mind — he is the least able of the group physically, although Aybee helps to make up for this.

AYBEE WAN OWEN

Position: Personal servant and protégé of Dr. Krenstein.

AB-101, or "Aybee", is a pseudobiological robot designed and constructed by Dr. Krenstein. Aybee's apparent UPP is what Dr. Krenstein wishes Aybee to project to others based upon his programming (he is actually capable of much greater values); his intelligence and education are estimated from his computer hardware and software; and his social class is based upon his position as a knight.

Although Aybee's programming gives him certain basic abilities, he lacks true artificial intelligence and thus can make errors in judgment; in abstract situations, this effectively lowers his true skill level. Aybee's "weapon" is a light laser welder, built into his right arm. Many Imperial worlds specify standards for robot-installed weapons, and Dr. Krenstein has designed Aybee so that his arm (ostensibly used only as a tool) can pass inspection by officials, since laser welders are generally not restricted by local law levels; however, voice override controls allow Dr. Krenstein to use Aybee as a weapon at short range.

Roleplaying Notes: Without a doubt, Aybee is the most unusual of the quartet. He is also the most difficult to roleplay effectively.

Aybee is the most valuable piece of equipment the group has. He can record situations in 3-D holograph form (10 minutes' worth, after which it is relegated to 2-D storage), then play them back for future study at the group's leisure. He will quietly observe a situation and report his findings to the doctor, keeping the doctor's safety as his priority.

Aybee is a good source of logical analysis, although his conclusions are devoid of any creativity or revelations beyond the obvious (although sometimes the obvious can seem like a revelation). Play him as a naïve, knowledge-hungry character. He should make errors in judgment when a situation relies heavily on intuition. He is likely to miss subtle innuendos that humans are so prone to use.

Strangers who find out that Aybee is a robot may react negatively (increase the difficulty of any interpersonal task one level). Most will never suspect from casual observation that Aybee is nothing but a machine.

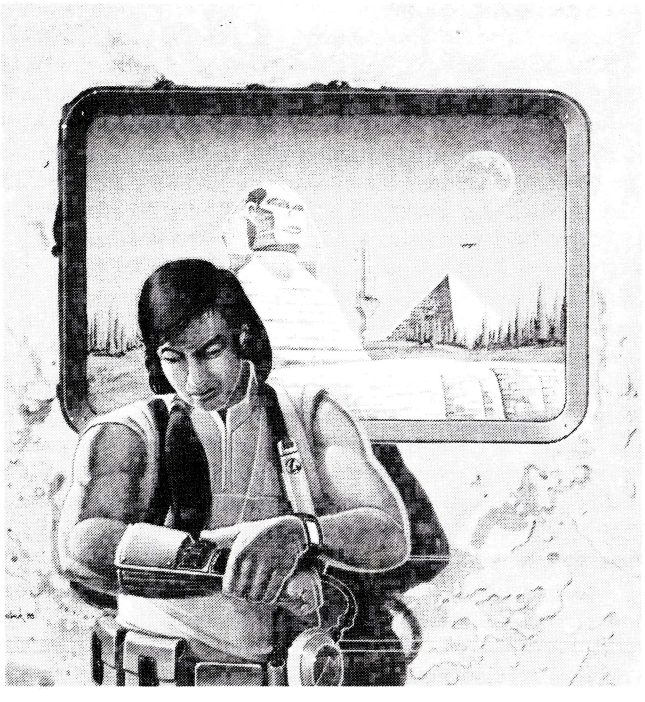
To determine Aybee is a robot at close (1.5m) range:
Difficult, Robotics, Interview, 2 min
Referee: Roll once during the first encounter. Thereafter roll daily if the character constantly spends extended periods of time near Aybee. Otherwise, ignore this task — there is no chance for detection.

Aybee's power plant is a closed hydrogen/open oxygen fuel cell. Aybee carries his own hydrogen supply, but the hydrogen is oxidized by oxygen from the air. Aybee is thus much like a true human in this respect — if he loses his oxygen supply, his power plant will not function. After an accident at the Shudusham Robotics Conference, Krenstein installed a half-hour supply of oxygen for emergencies. Aybee's fuel cell produces a harmless waste by-product which must be eliminated from time to time: pure water.•

Terra Incognita

ADVENTURE NUMBER 13

—by Gary L. Thomas



INTRODUCTION

This adventure deals with a *Travellers' Digest* journalist and his companions in their continuing tour of the Imperium. The group has at last reached Terra, the original home of the human race.

Chapters: This adventure is in several chapters, most of which are material to be read only by the referee.

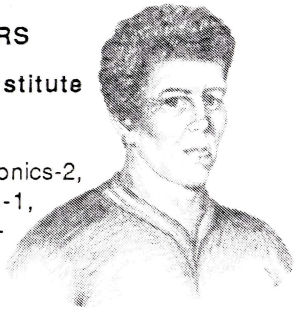
The chapter "Terra Infirma" introduces the players and the situation. This section may be used in one of two ways: either read it to the players, or have them each read their characters' parts. The idea in either case is to acquaint them with the characters and their personalities. The articles in this issue on the Terra system, Dolphins, and the Marine occupation may also be read by the players.

Dates: All dates herein correspond to the Imperial calendar. The starting date of this adventure is 356-1106.

Place: This adventure starts at the Machu Picchu ruins near Cuzco, Peru, on Terra.

Playtested by: Craig Sweigart, Nona Sweigart, Ron Abramson, Martin Ackerman, Gerry Dong, Mark Gabarini, Lane Renfro .

NON-PLAYER CHARACTERS



Peter Athlos, Psionics Institute Leader

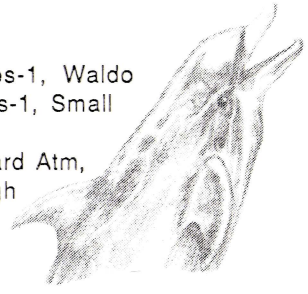
AB8DD8-B age 42 10 terms

Leader-3, Computer-2, Electronics-2, Admin-1, Jack-of-all-trades-1, Medical-1, Psionics-12, Clairvoyance-12, Pyrotechnics-12, Telekinesis-12, Telepathy-12

Starport A, Medium, Thin Atm, Wet, Mod Pop, Mod Law, High Stellar (Zhdant)

Since his arrival on Terra several months ago, Peter Athlos has become the leader of the local Psionics Institute. He is friendly and well-liked by his fellows; he is also respected for his psionic abilities and his devotion to the cause of psionic science.

But Peter hides a deep, dark secret from his psionic associates and the Imperial authorities. In fact, he is a Zhodani noble, who has travelled to Terra to disrupt Imperial affairs in whatever way he can.



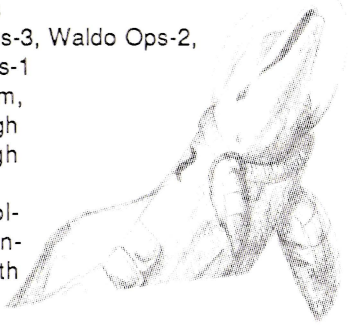
Teree'ee, Scientist

78B7A3 age 34 4 terms

Biology-3, Jack-of-all-trades-1, Waldo Ops-1, Artisan-1, Sensor Ops-1, Small Blade-1

Starport A, Medium, Standard Atm, Wet, High Pop, High Law, High Stellar (Terra)

Teree'ee is a Dolphin working for GenAssist.



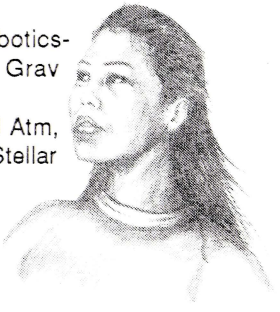
Kikilin, Doctor

6AD873 age 30 3 terms

Medical-3, Electronics-3, Waldo Ops-2, Computer-1, Linguistics-1

Starport A, Medium, Standard Atm, Wet, High Pop, High Law, High Stellar (Terra)

Kikilin is another Dolphin working for GenAssist. He is fitted with neural plug waldos.



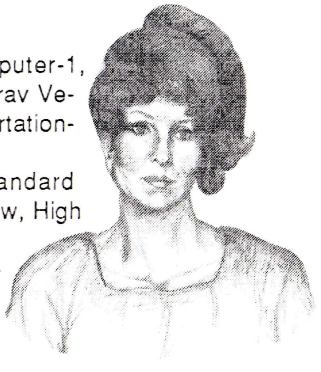
Luann Chen, Scientist

58AAC8 age 42 6 terms

Medical-4, Electronics-3, Robotics-2, Vacc Suit-2, Instruction-1, Grav Vehicle-0

Starport A, Medium, Standard Atm, Wet, High Pop, High Law, High Stellar (Terra)

Luann Chen is one of GenAssist's managers in the Dolphin Waldo Research and Development Laboratory.



Helen Forelli, Scientist

779999 age 28 3 terms

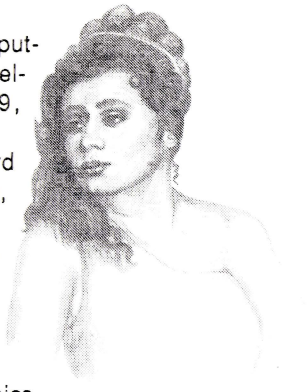
Admin-2, Artisan-1, Computer-1, Genetics-1, Persuasion-1, Grav Vehicle-0, Psionics-10, Teleportation-10

Starport A, Medium, Standard Atm, Wet, High Pop, High Law, High Stellar (Terra)

Helen Forelli is on the administrative support staff for GenAssist's Dolphin Waldo

Research and Development Laboratory. She also happens to be a member of the Terran Psionics Institute.

Widad al-Shaykh, Psionic Volunteer



448C96 age 25 2 terms

Admin-1, Body Pistol-1, Computer-1, History-1, Psionics-9, Telepathy-9, Clairvoyance-9, Awareness-9

Starport A, Medium, Standard Atm, Wet, High Pop, High Law, High Stellar (Terra)

Widad al-Shaykh works as a tour guide for the Terran Historical Administration at the Great Pyramids near Giza, Egypt, providing her excellent cover for her work at the Terran Psionics Institute hidden within the Sphinx.

TERRA INFIRMA

The difference between a "tourist" and a "traveller" is that the tourist gets himself into trouble and then can't get out, while the traveller gets himself into trouble and then saves himself somehow. Krenstein and Aybee certainly met the mileage qualifications to be travellers: in the past five years, they had journeyed from the Spinward Marches to Terra, aboriginal home of the human race. The only question now was whether they could get out of the trouble they were in.

Certainly they had an excuse for being in it. Something about the Solomani frame of mind lent itself to peculiar political excesses: nothing could be done halfway; the golden mean was out, extremism was in. This was all part of a long Terran tradition.

In any case, it was hardly Krenstein's fault that he chose that day to visit Machu Picchu, the Incan ruins near Cuzco, Peru. Built over 4,000 years before, the silent grounds still stood as mute testimony to what humans could achieve with their brains and hands. When the Spanish marauders had almost destroyed the Incan empire, Machu Picchu was the last fortress of the Indians. Lying 2,000 meters above sea level, the city sits on the edge of a cliff, with the Urubamba River 600 meters below. The Incan leader was killed in the 16th century, whereupon the inhabitants of the city fled the site, and Machu Picchu was forgotten. It was not rediscovered until 1911, by the Terran calendar.

But to get back to our story. Krenstein couldn't have expected the Society for the Sovereignty of Man over Machine to pick this spot for their next demonstration. Sure, with the burgeoning crowds the Terran Historical Administration had started to use robots as tour guides, but who other than a handful of crackpots would take offense at such a thing? Besides, the security programs in the robots shouldn't have been so zealous in defending themselves.

About 18,000 tourists (and a few travellers) visit Machu Picchu every day, so it wasn't unusual to see a few SSMM types manning a holobooth and handing out their propaganda. What was unusual was to see the SSMM "commandos" attack the guidebots. Security has to be tight at such a place, or the tourists would chip away the whole city so they could take home souvenirs. Still, it was a surprise to find out that the bots were equipped with slugthrowers, and when they started pelting the crowd with carelessly aimed rounds, all hell broke loose.

Aybee, with the fortitude of a machine and 350 kilograms of weight under his belt, stood his ground as long as he could, but after Krenstein was knocked to the ground the second time, the robot picked up the doctor in both arms and ran across the fields. Anywhere to get away from these trampling feet, he thought.

It wasn't hard for him to stay up, and only a few minutes later, he found a dark corner of the ruins to duck into: a prehistoric back alley, if you will. Here, the two friends broke one of the rules that separate travellers from tourists: don't go where you don't know where you are or what you're likely to find.

Krenstein was out of breath from the jostling he'd received, so he was half-standing with his hands on his knees when the first thug crept up behind him and slugged him over the back of the head. The second thug jumped onto Aybee's back, expecting to wrestle him to the ground, but Aybee just reached around and pushed him off, then moved between the two villains and the doctor.

"Don't come any closer," Aybee said, holding out his arms bent at the wrists as if pushing them away. He glanced down at his companion. "Doctor, are you all right?"

When Aybee glanced back up, he was looking down the barrel of a gauss pistol. "Sure, Doc'll be fine," said the thug. "You'll both be just fine. We'll take that hand computer he's wearing, though, and you'd be good to hand over your credits while my buddy goes through Doc's pockets. Just step away and nobody'll get hurt."

"Doctor, answer me," the robot said, bending closer to Krenstein but keeping his eyes toward the menacing weapon held by the robber. Aybee put one hand on Krenstein's left shoulder and shook him gently.

The doctor groaned a little, and the thug waved the gun in the air. "Just back away from him, sonny, or you'll both find out what these needles feel like. Phillip, get the hand computer while I keep an eye on him."

The second thug started to move toward the prone figure, but Aybee looked at him with such intensity that he stopped for a moment. "Get it, Phillip," the first man said. "And you, just back away from the old geezer, y'hear?"

Krenstein lifted up his head and blinked his eyes a few times as if seeing the stone walls around him for the first time in his life. "Aybee," he said, "help me."

"I need permission, Doctor, *now*." The robot's voder put a highly charged insistence into his youthful voice.

"Just back up, 'cause I don't like doing this," said the thug, clutching his weapon with a tighter, sweatier grip. "Phillip, get going."

Krenstein turned his head toward Aybee, a reddish bruise showing on his left cheek. "Sure, Aybee," the doctor said. "Podia. Catala. Pecta."

Only two other men knew those three words: Dur Telemon and his uncle, Akidda Laagiir, Krenstein's travelling companions. The eight meaningless syllables were chosen as the override code that would give permission to AB-101 to use his built-in laser weapon against a sentient target.

Aybee brought up his right hand slowly, as if unsure of

himself, pointing toward the man with the gun. "You," he said, "should not have done that."

An instant later, the man screamed, dropping the gun and using both his hands to clutch at the spot where the invisible laser blast had burnt a hole through his shirt and into his chest. The thug fell to his knees and weaved back and forth, staring at Aybee with bewilderment.

As Phillip lurched for the fallen gauss pistol, Aybee's arm swung around and set the skin and hair around his right ear on fire. The lifeless man completed his dive face-first into the sandy soil, a few wisps of smoke still rising from the charred spot on his temple.

"Phillip," Aybee said, "you should not have done that either."

Krenstein regained his strength and sat up just as the first thug rose to his feet, staring wildly at the robot. "Let him go, Aybee," the doctor said, and the thug wasted no time in scrambling down the alleyway away from his dead accomplice and their intended victims.

"Are you all right, doctor?" Aybee asked.

"I think so, Aybee," Krenstein said as he reached around behind his head and felt at the dried blood there. "I'm glad you were with me, but we have a problem now in the way we explain this to the authorities. If certain people find out what you are —"

Aybee was quick enough to grab hold of the doctor as Krenstein lost consciousness and sagged into the robot's arms. Aybee picked the doctor up again, then carried him out into the open air, setting him down gently in the shade of a scrubby tree about 80 meters from the alleyway.

The robot lifted Krenstein's arm up and spoke into the hand computer strapped to the wrist. "Speaker Sir Aybee Wan Owen issuing priority page for Sirs Akidda Laagiir and Dur Telemon. Message: Please contact me immediately. I'm afraid we're in big trouble."

REFEREE'S SYNOPSIS

After the unfortunate incident at Machu Picchu, the body of the thug turns up missing, whether the adventurers report it to the police or not. The team is invited to visit the Dolphin Institute to see the progress made with genetically altered dolphins which have achieved sentience. There, Aybee is approached by representatives of the local Psionics Institute, who mistakenly believe that Aybee is psionic. The entire group is invited to the Psionics Institute, where they encounter an old enemy.

THE UNSEEN EYE

Aybee and Krenstein were not alone in their prehistoric back alleyway. Besides the two thugs, a representative of another group had chosen that location as a hiding place, and had observed the whole affair. This woman, named Patricia Wiesel, belongs to the Terran Psionics Institute. Never before has she seen such a display of power. When she tried to read Aybee's mind, she got nothing, further proof of Aybee's psionic prowess. Krenstein, for his part, was too unconscious for Patricia's minor abilities to probe. When Aybee carried the doctor away, Patricia used clairvoyance to eavesdrop on the pair, so she now knows the names of three of the group.

THE CASE OF THE MISSING PHILLIP

To protect this "fellow psionicist", Patricia dragged Phillip's body away, hiding it behind a loose stone she knew of in the Machu Picchu ruins. For purposes of the game, the body cannot be found, but if players insist, make up an uncertain UTP and fudge your rolls. "Nope, you don't find a thing." The police, summoned to the scene of the crime, will of course conduct a much more thorough investigation, but by that time friends of Patricia will have had opportunity to remove the body from its hiding place and dispose of it.

Aybee's permission to fire his laser welder lasts for 24 hours, unless revoked by Krenstein or another character before then.

THE CAVALRY TO THE RESCUE

Dur and Akidda are sightseeing in Paris, and when notified of the page by Akidda's small hand computer are about two-thirds up the elevator shaft of the Eiffel Tower. If the two characters want to talk with Aybee through the hand computer, it is as simple as using an old-fashioned tech level 8 telephone. Communication in this way is secure, as one hand computer scrambles the signal before it is transmitted to the central station; after receipt of the message, the second hand computer descrambles it.

It will take about 10 minutes to get back down to the ground, another quarter hour to get to the Paris Transport Terminal, an hour's wait for the next hypersonic grav speeder, and then a trip of one hour to reach the terminal closest to Machu Picchu, from which the site is only 10 minutes away by air/raft. If Dur and Akidda charter a grav transport, or point out that they are knights, the total travel time can be cut by one-third by eliminating some of the waiting.

It is unlikely that Aybee is willing to wait for his companions while Krenstein is unconscious. Aybee can use the medical skill he has (without equipment, making the diagnostic task more difficult), or he can summon local help with Krenstein's hand computer, if he wishes. If he does, the authorities will summon immediate medical assistance, and Krenstein will be taken to the local hospital. He does not regain consciousness for four hours, and his physical characteristics are halved (he regains one point in each per day), but he suffers no other permanent harm.

Since Aybee and Krenstein are knights, the investigation is conducted by the Imperial Marines Military Police. If called, the police also ask where Aybee and the doctor were when they were attacked, and they investigate the scene. If Aybee told the whole truth and mentioned that Phillip was still in the alleyway, the police suppose that his accomplice snuck back and took the body to protect his own identity. The police bring in special equipment, including a sniffer, to search the area, but do not turn up any other clues.

If Aybee or anyone else in the party reveals that Aybee is a robot, the authorities are initially skeptical (especially concerning his knighthood), but the investigating officer omits this fact from his report, "because if the SSMM caught wind of this, you'd have a much bigger problem on your hands," he says. He notes only that Aybee struck the assailants, knocking one temporarily unconscious and driving the other away. Until Phillip's body is recovered, this story will hold up, and there's a good possibility that it will never be found, according to the detective.

If the characters lie to the police, they are believed as long as their story is plausible. They could even say that the two characters were exploring, and that Krenstein slipped and fell, thus getting him into the hospital without any police contact whatsoever.

NOTES ON PLAYING ON TERRA

Refereeing players whose characters are visiting the planet that the players actually live on is a challenge, but certainly an enjoyable one. If you grew up in one city, then moved away, and have had an opportunity to go back and have seen how different things are, then you understand the feeling that you have to impart to your players.

Earth in the late 20th century and Terra in the 57th century have more differences than things in common. Things that are important to the players today don't even exist 3,000 years from now. There are no Democrat and Republican parties fighting over who should be elected president of the United States; there is no United States, after all, to have a president. All the famous people that the players know of and care about have been dead for thousands of years: no more Mr. T, no more Rolling Stones, no more David Letterman, no more Reggie Jackson. Popular movies, television programs, and magazines have been replaced over the years, with holographic entertainment filling the void.

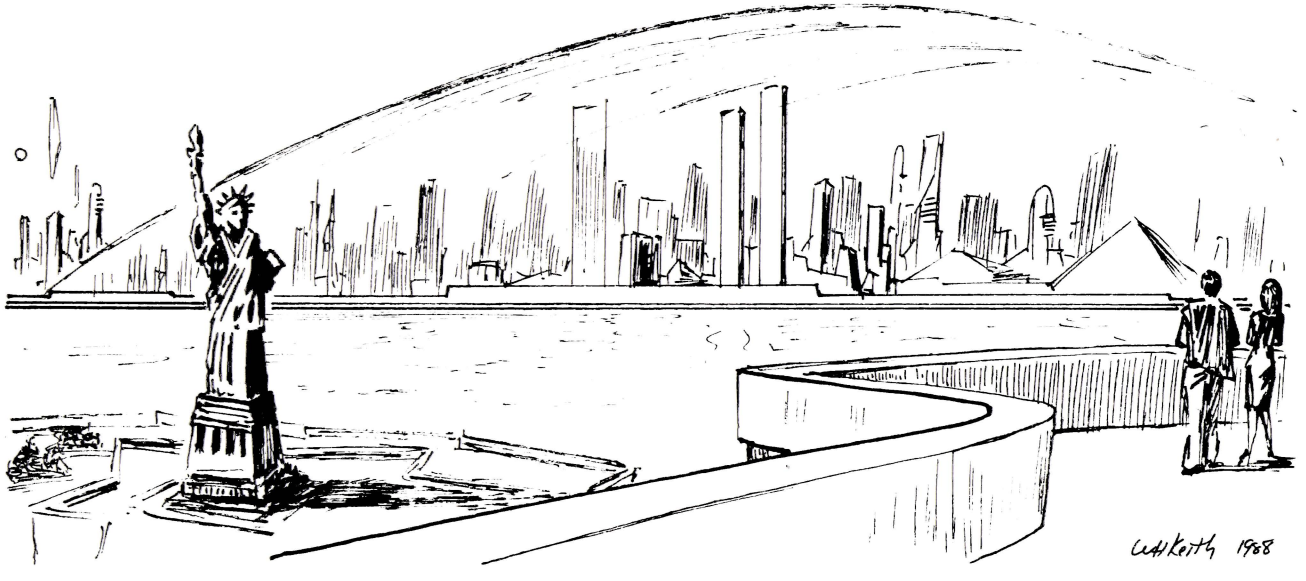
Pollution, once such a problem that a dome was built over New York, is now a thing of the distant past, and the area under the dome has become the New York Historical Museum.

Terraforming has reshaped much of the face of our planet into something unfamiliar. The vast wasteland we know as the Sahara has become the Sahara Agricultural Project, millions of acres of fertile farmland tended by thousands of agrobots doing all the work. A small area is kept as the Sahara Desert Preserve, all that is left of what was once the largest desert on Terra, in order to provide habitat for those few species that flourish in such a clime.

An increase in the average world temperature has melted much of the polar icecaps and raised the level of the oceans about 15 meters. Many land masses familiar to 20th-century players have changed into something unrecognizable to the 57th-century character. A few densely populated regions were protected by seawalls, built up like dikes to permanently separate the land from the encroaching water. In the Imperial invasion during the Solomani Rim War, many of these seawalls became attractive targets for disrupting Terran society and lessening the morale of defenders. Since that time, most of these seawalls have been rebuilt and the water pumped from their areas.

Another difference between our Earth and **Traveller**'s Terra is the presence of large undersea cities. These arcologies, thousands of feet high, sometimes project above the surface of the ocean. (The cover illustration shows one of these cities in the distance; the area around the pyramids is protected by a seawall.)

The presence of aliens is another factor that does not exist in the present day. Aslan are fairly common in any large city, as are Dolphins. Vargr are rare here; they resent the implicit comparisons made between themselves and the native Terran animals from which they are descended. A group of Hivers raised enough money to purchase several hundred thousand acres on the east coast of Australia, and have set up a Hiver enclave there, complete with the wilderness necessary to allow Hiver larvae to mature. The Hivers are well tolerated by the humans on Terra, because the enclave is a good source of inexpensive high-technology electronics. This goodwill might not exist if the humans knew of the Hiver propensity to manipulate "younger" races into "adulthood". (These manipulations play no part in this



adventure, although you could certainly add one in for a side plot; for an example of a manipulation, see Adventure 8 of the *Travellers' Digest*.)

THE SOCIETY FOR THE SOVEREIGNTY OF MAN OVER MACHINE

Some human-populated worlds harbor a general anti-robotic bias, even though robots are technologically feasible there. On such worlds, items advertised as "human-made" often bring a premium price. A famous example of this philosophy is the popular quasi-religious Society for the Sovereignty of Man over Machine (SSMM) in the Solomani Confederation.

The SSMM claims that robots increase unemployment for humans, that robots are dangerous, and that trying to make a machine duplicate the functions of a human is immoral. The Society is so extreme in its anti-technology bias that when injured humans use robotic appliances as replacement body parts, members of the society look upon the human with great disdain.

Some of the propaganda of the SSMM carries a bigoted attitude toward non-human races, particularly the Vargr and Dolphins, both of which started out as Terran life forms, given intelligence by the genetic manipulations of other species.

THE MACHU PICCHU RIOTS

While the SSMM is certainly no stranger to public demonstrations, this marks the first time on Terra that such an outbreak has resulted in mass injuries to spectators. Unfortunately, the fact that these injuries were for the most part caused by robots fits in perfectly with the views of the Society. Some might even be tempted to believe that the overreaction by the guidebots was somehow caused by the SSMM.

Krenstein, as a prominent roboticist, could offer to assist the Terran Historical Administration (THA) in investigating the cause of the shootings. If he does so, he is welcomed with open arms, and within an hour, news broadcasts of the incident mention that he has been called in as an outside expert. Within a few more hours, he is already being named as codefendant in lawsuits filed by those injured. Careful study of the programs loaded into the guidebots show carelessness as the cause: no malicious intent is descernible. In fact, other guidebots at other locations (including the New York Historical Museum) are running the exact same software — a powderkeg just waiting for a spark to set it off. Under these circumstances, THA will offer Krenstein Cr20,000 for his assistance, with the understanding that what he discovered is "company confidential" and not to be disclosed without permission of THA. They will also hold him harmless in any civil actions filed as a result of the Machu Picchu incident.

The day after the rioting at Machu Picchu, in fact, several other THA installations are closed for a few days for what the agency calls "regularly scheduled maintenance" — in fact, the guidebots at these locations are being reprogrammed.

WE NEED A LITTLE REST, GUYS

At this point in time, the characters probably want to go back to their TAS hostel rooms and reconnoiter the situation. The hostel is conveniently near the North African starport, which by coincidence is near the Imperial Marine base. By the time the characters are settled in and resting comfortably, the situation at the base has erupted into a real emergency.

Underwater charges destroyed a section of seawall surrounding the Marine base, killing hundreds of Marine and civilian personnel and causing millions of credits worth of damage. According to a communique purporting to have been isued by the SSMM, the action "commemorates the beginning of the Solomani Rim War of Independence and is a shining light of hope for billions of humans still yearning for their freedom from the yoke of their oppressors."

In fact, the SSMM had nothing whatsoever to do with the bombing, but authorities ignore these protestations in light of the communique they received. The four characters receive "form letters" from the Imperial Marines, advising them that "certain elements of Terran society have reasserted their violent claims to so-called self-rule, and members of the Imperial nobility are cautioned against flaunting their status during this time period." The true culprits behind the bombing are detailed below.

If the characters reported earlier to the MPs that Aybee was a robot, then they are visited by the investigating officer, to find out if the characters had received any subsequent threats. The four are seriously admonished against letting it become known that Aybee is not human.

A VISIT TO DELPHI

The next day, Krenstein is contacted by Luann Chen of GenAssist, the Solomani "megacorporation" responsible for developing the intelligent race of Dolphins. Dr. Chen discovered Krenstein's presence on Terra from checking the TAS guest list (or alternatively from news reports on the Terran Historical Administration robot fiasco, if Krenstein offered his help). As Krenstein is well known for his work with robotics, Chen would like to show him what GenAssist has been doing with waldos, particularly the latest in neural-plug designs.

She offers to have a company vehicle pick him up and bring him to GenAssist's complex offshore from Delphi, Greece, the historical site of the Delphic Oracle, where the priestess of Apollo received revelations from him thousands of years ago.

Chen has something to offer Krenstein, too: the research that GenAssist conducted to create genetic intelligence in Dolphins might have applications to robotic artificial intelligence, one of Krenstein's main study areas (and the reason behind the construction of AB-101, although of course Luann Chen doesn't know this).

Presuming that Krenstein's travelling companions are interested in accompanying him, they are certainly welcome to come along for this special industrial tour. Krenstein and the others may be suspicious of this invitation; if they try to find out more information on Chen, she appears legitimate — several articles on Dolphin mechanical appendages and intelligence have been co-authored by her in local technical journals. (In fact, the invitation is completely legitimate and above-board, but we mention these things because in our playtesting, for some reason the players became very suspicious at this point.)

GENASSIST AT DELPHI

The next morning, then, a GenAssist luxury grav vehicle arrives at the TAS hostel to ferry the characters to the Delphi arcology. Luann Chen is on board to greet the characters, and she chats amiably about her work during the 12-minute trip between North Africa and Greece.

Docking at Delphi, Chen leads the characters into the complex, pointing out interesting things as they pass by them. Dolphins wearing TeeSuits work side-by-side with humans in the laboratories and offices. Several areas have pools that allow ingress and egress to the ocean depths from within the complex.

Chen leads the group to her work area, but when she unlocks the door and ushers her new friends inside, she finds that the laboratory has been ransacked: equipment has been picked up and thrown about the room, tables and chairs have been knocked over, and shelves of bottles have been tipped away from the walls onto the floor. Chen is visibly distraught and calls for GenAssist security immediately, closing the room back up until they arrive with high-tech sniffers and other investigative equipment.

The security staff question Chen, and if your players are anything like our playtesters, the characters will do their best to eavesdrop on this conversation. The guards suspect "competitor analysis specialists" — also known as industrial spies — but a more careful perusal of the room makes the damage look more like random vandalism than theft. Nothing seems to be missing, and there is no sign of forced entry into the room. The guards collect air samples with the sniffer, take a few holographic pictures, and then leave.

ANYONE FOR A SWIM?

Chen apologizes for the inconvenience, but then extends an offer to more than make up for it. If the characters would like, she could arrange for diving equipment, and the group could go out to meet the Dolphins "up close and personal". This wonderful opportunity is not often extended to visitors.

Presumably, the characters will be interested in this invitation: it should appeal to Dur's sense of adventure, Krenstein's curiosity, and Akidda's nose for a good story. (Krenstein has recovered enough from his injuries to be able to come along.) Aybee, though, has a problem in that his 350 kilograms would sink like a stone, demonstrating once and for all that there was something unusual about him.

If the characters show any reluctance to his going, Chen is immediately understanding. "It's nothing to be ashamed of, really," she says. "Many of our employees are non-divers, and to someone not used to it, it can be a foreboding experience. Perhaps another time." It is no problem whatsoever for Aybee to remain behind; he can tour more of the complex while the others visit the Dolphins.

The other three can be fitted with fins, masks, dry suits, weights, and rebreathers for their underwater excursion.

ATLANTIS

The Dolphin "city" beneath the waves is called Atlantis, after a mythological Terran continent thought to have sunk beneath the sea eons ago. The characters have an opportunity here to see many things that none of them have ever seen before. The two Dolphin guides are gracious hosts, and more than happy to show the characters anything they wish to see. Both Dolphins speak Galanglic, although with a peculiar accent that none of the characters has heard anywhere else.

One interesting sight is the Atlantis fish farm, raising food for the carnivorous Dolphins. Long translucent nets form enclosed areas which keep the fish in their natural environment but separated from other predators. The characters are also shown a TeeSuit holder, one common way for Dolphins to dress for travel above the water. The TeeSuit is held open at both ends; the Dolphin then swims into the suit from the back, and by pulling it from the holder causes it to suddenly enclose around him.

During the tour, another Dolphin swims up close to Akidda when he is more or less distant from the rest of the group, and softly says, "The door is open and the window is closed." No matter what Akidda answers, the Dolphin says, "Oh, sorry," and swims swiftly away. (Akidda has failed this password sequence, but he will hear it later and perhaps understand what this strange encounter means.)

AYBEE'S TOUR

Meanwhile, back in the Delphi complex, Helen Forelli is Aybee's tour guide. She leads him through a variety of laboratories and manufacturing facilities, including a "zoo" area that contains alien species that GenAssist believes could be enhanced to intelligence.

Near the end of the tour, Forelli leans close to Aybee and whispers, "I know who you really are." Aybee is constrained from revealing that he is a robot under these circumstances, of course, and (at least in our playtest) the conversation proceeds something like this:

"Oh, you do?" Aybee says, nonchalantly.

"Yes, friends of yours and mine hid that man's body," Forelli explains.

"Friends?"

"It's all right, because we're just like you."

"What do you mean, just like me?"

"We moved the body because it wouldn't be good to leave such blatant evidence of psionics lying around," Forelli says.

At this point, the players should start getting excited: after evidently witnessing Aybee's laser blast at Machu Picchu, someone has mistakenly inferred that the robot achieved this marvel through the power of psionics.

"The Institute is eager to talk with you, you know," Forelli says to Aybee. The return of the rest of the party interrupts the rest of the conversation. "Take a tour of the pyramid at Giza tomorrow," she whispers, then makes an excuse and leaves the room.

It's possible that Krenstein or other characters also remained behind with Aybee; in this case, the above conversation proceeds in a similar fashion, with the others learning the secret sooner.

IMPLICATIONS AND TYPICAL CHARACTERS REACTIONS

While most **Traveller** players would jump at the chance to have their characters visit a Psionics Institute, it's possible that some players will be more reluctant than others. Krenstein might be concerned about walking into such an illegal activity, since Aybee is *not* psionic, and the reactions

of the Institute to this fraud is unpredictable. Remind him in this case that a visit could greatly expand his understanding of intelligence and the brain, perhaps solving some of the riddles that have stumped him in developing robot brains.

Dur is likely to harbor an almost instinctive prejudice against psionics, since the Zhodani have been historical enemies of his family in two different wars. The only pacification that can be given him is to point out that while the Zhodani Consulate as a whole practices and encourages psionics, it is not necessarily the case that individuals with interest in psionics are politically inclined toward the Consulate.

Akidda probably has no hesitations whatsoever. He's been in tight scrapes before, and his streetwise skill has always gotten him out of them. Besides, the potential for a story in this case is incredible: his editor would certainly love to see an article (with pictures, of course) on the Terran Psionics Institute.

THE PYRAMID OF CHEOPS

The Nile River valley on 57th-century Terra is flooded by the rise of the oceans, but a few areas with particular historical value have been preserved by seawalls. One of these locations is around Giza, home of the Great Pyramids, one of the Seven Wonders of the World in the estimation of the ancient Greeks.

Today, the area is no longer barren desert, but supports a variety of plant life, thanks to the extensive terraforming that has changed so much of the face of the planet. Thousands of tourists visit the site every day; for some reason, the tours today are being led by humans rather than the more typical guidebots.

For a small fee, visitors are led inside the largest of the three pyramids, the historical tomb of Cheops (or Khufu, as he is sometimes known). The pyramid's inner depths are well understood by archaeologists, thanks to detailed maps created using densitometers. Secret passages, hidden for centuries, were easily discovered by their differing density from the solid stone surrounding them.

The four player characters are part of a group of about 20 tourists, with four guides conducting them; in that way, each smaller group of visitors can hear what their guide is saying without anyone having to shout or use amplification. As it happens, the four adventurers are assigned a guide named Widad al-Shaykh, an Arab Egyptian woman who has lived in the Cairo area her whole life. She is personable and friendly, besides being attractive and well-informed on her subject: in all, she personifies what every tour guide should be. Her love of ancient Egypt is inspiring to those listening to her.

The tour begins by leading the group down into the room that served as the queen's burial chamber. An attempt is made to instill an eerie atmosphere: tour guides carry flickering torches to light the path (naturally, full air conditioning and climate control systems remove the fumes from these torches, but these vents and systems are for the most part well hidden in the rocky passageways).

The burial chamber has been rebuilt to appear as it once looked, before the pyramid was vandalized by graverobbers centuries ago. The queen's mummy case is here, as are all the accoutrements that the ancient Egyptians believed were necessary for a soul to be reborn in the afterlife. Urns of food and wine are arrayed against one wall; statues of various gods and goddesses of the Egyptian pantheon stand guard over the scene, ready to fulfill their functions at the proper time. Inscribed and painted scenes on the walls of the chamber depict the high points of the queen's life, along with happy scenes of life on earth and the expected course of events in the afterlife.

A SIDE EXCURSION

On the way back out, al-Shaykh takes considerable time in explaining the fascinating way of life of the ancient Egyptians, making the subject come alive for her four charges. Terra is a focal point of history, she explains, and this place in particular is one which is supercharged with activities that have changed humanity over and over again. The Egyptians, she says, were the inventors of the alphabet, making possible the transmission of knowledge from one generation to the next. None of modern technology would be possible without that precious gift of written language.

The Egyptians were also one of the first to create an extensive culture, with a well developed religion and government. Because the Nile River flooded its banks each year (this was long before terraforming, of course), the Egyptians invented surveying and geometry to determine who owned what after the waters receded. This original mathematics was passed on to the Greeks, and Euclid codified it. For more than 6,000 years, students have studied Euclid's geometry on Terra, but not one of them ever enjoyed it, she says with a smile.

In the course of her interesting exposition, it is unlikely that the characters will notice that they have become separated from the rest of the group. Walking slowly down the ancient corridor while she spoke, they have reached a side passage, barricaded with a metal gate displaying an "Authorized Personnel Only" sign. Looking both ways, al-Shaykh makes sure that the coast is clear, then keys in the code sequence on the gate's electronic lock. The gate slides open, and she gestures inside. "This way," she says. "We must hurry."

FOUR LEGS IN THE MORNING

Al-Shaykh leads the party through the Egyptian corridors, her torch flickering off the walls as she goes along. If anyone asks her where they are going, she motions them to silence with a worried stare and continues on her route. The tunnel leads down, down, down before continuing straight ahead for a considerable distance. After several minutes of strenuous walking, she suddenly stops.

"Can you guess where we are now?" she asks softly, still playing the part of a tour guide. "The Egyptians who built the pyramids also built something else that I think is more impressive: a tunnel from the largest pyramid to the Sphinx. We are 25 meters underground, and the tunnel stretches the entire quarter mile. It would be most impressive on a tour, but unfortunately it is unsafe because of millenia of decay and erosion. It could collapse at any moment."

So saying, she continues down the dark tunnel, her torch lighting the way. What she says is true: the nearby tourist

village of Nazlet al-Samman and related hotels started causing problems in the Sphinx in the late 20th century, because of creeping changes in the underground water table caused by an inadequate sewage system. Fortunately, scientists discovered the problem in time and prevented further decay. The Sphinx should last for millenia more — which is not to say that it will, but only that it should: read on.

TWO LEGS AT NOON

The passageway reaches a stairway, and al-Shaykh climbs it for what in the old days would have been called 10 stories. "Archaeologists didn't even realize that the Sphinx was hollow until they attacked it with densitometer scans. It was really an afterthought when they were mapping the pyramid's burial chambers," she says on the way up.

The stairs suddenly end at a wall. Al-Shaykh knocks on it, whereupon a voice behind the wall says, "The door is open and the window is closed." The guide answers back, saying, "The moon is high and the sun is low," and the wall slides open. Akidda at this point should start putting two and two together: the dolphin that approached him at Atlantis is somehow a member of this Psionics Institute. That could explain the ransacked lab at GenAssist, if a Dolphin were playing with telekinesis.

Al-Shaykh leads the characters into the room, which has two other psionicists in it conducting experiments. The leader of the Terran Psionics Institute, has one very strict rule: it is improper to read the minds of others without their permission except in an emergency. The rule is meant to protect Athlos's false identity from his fellows, but fortunately will also serve in this instance to protect the characters.

While the players may sense danger, that impression is totally unfounded — so far, at least. The members of the Psionics Institute here, while of necessity keeping their secrets away from the prying eyes of outsiders, have no qualms whatsoever in openly discussing any topic with those allowed into the inner sanctum of the Sphinx.

If the characters mention anything about Dolphins and psionics, al-Shaykh warns them that they "shouldn't read her mind without her permission — Peter forbids it." Since the project is secret, she assumes that they found out about it psionically. Since, however, the subject has been breached, she does not hesitate to discuss it further. Since Dolphins have such a difficulty with their waldos, even with the new neural plug implants, the Psionics Institute took it upon itself to try to cultivate psionics in Dolphins, so that waldos could be operated by "flicking": turning electropsionic switches on and off without physical contact.

The psionicists talk glowingly of Peter Athlos, their leader. "Peter this" and "Peter that" peppers their conversations: "before Peter showed up, the Terran Psionics Institute had almost closed its doors; Peter knows more about psionics than anyone they have ever met; Peter has set up policies to protect the Institute from those outside who might oppose it; Peter is just dying to meet all of you."

This last comment should put the fear of god back into the players, who might have been lulled by this time into forgetting that their characters are here as imposters. You as referee must keep the tension level steady — high enough that the players are interested, but not so high that the characters cut and run.

THREE LEGS IN THE EVENING

Peter Athlos is probably not what the characters expect: he is affable, easy to get along with, and from all outward appearances is a normal human being (which in fact he is — it's normal for some human beings to be psionic.) He welcomes the group, and explains that one of the members of the Psionics Institute was hiding in the alleyway when Aybee blasted the thugs. When she tried to read Aybee's mind and could pick up nothing, she concluded that Aybee had a natural psionic shield up, and that he was psionic. The eavesdropper reported all of this to Athlos, and an invitation was arranged. Luann Chen knew nothing of this; it was coincidence that she asked the party to come to Delphi where Aybee could be contacted by Helen Forelli.

Now that the characters have arrived, Athlos is eager to hook Aybee up to some of the devices in the lab and study his technique of producing pyrotechnics, a rare ability that few endowed with psionics possess. *This* request should worry your players, but it might not. Our playtester for Krenstein was as mischievous as the doctor himself is, and decided to let Athlos go to the trouble of hooking everything up. When nothing registered on the dials, Krenstein leaned over to the apparently troubled Athlos and whispered, "Don't expect much — Aybee's a robot!"

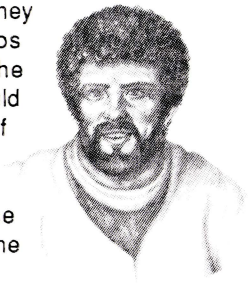
In any case, Athlos makes some excuse to get the rest of the Psionics Institute members out of the room; he wants to talk to the guests in private. Athlos excuses himself for a moment, too, but then immediately returns. He asks the characters to sit down and make themselves comfortable, and then sits on a table against a wall, so that the charac-

ters are between himself and the door (this need not be made obvious to the players unless they ask).

THE FINAL MEETING

Athlos explains immediately that he asked the others to leave because he wanted to have a frank discussion, and that the others would be embarrassed to find out that Aybee is really a robot and not psionic at all. Athlos has known all along, but he asked the party to come to the Sphinx anyway, because he wanted to meet them. He has admired their abilities for quite some time, he says, but has never been able to find out how they were knighted, and is interested in hearing the details. The characters are not at liberty to discuss this: they broke up a Zhodani spy ring (led by a Zhodani named Whocco Tehn) at Jode/Pretoria in *The Early Adventures*, and authorities forbade them from publicizing it.

At their apologies, Athlos says that he understands, and that actually he knows the facts, but he hoped to hear their viewpoint. He mentions enough details to convince the characters that he really does know; when they ask how he found this out, he admits that he was there on the scene five years ago: Peter Athlos is Whocco Tehn, unrecognizable thanks to extensive plastic surgery on the way to Terra.



If the characters can stay calm, they might enjoy talking further with Athlos for a while; he sincerely admires the four for doing what no one else could do, and he wants to boast a little of his work with the Dolphins, who have been bombing Imperial military installations at his request. (The incident at Delphi was an accident, he claims: too often the Dolphins make mistakes.)

Your players, though, might react the way our playtesters did and initiate more violent action: the characters in our group gave Aybee the secret signal, and he started blasting away with his laser welder.

Whatever action is taken against Athlos is pointless: since his return to the room, he has been nothing but a pseudo-reality holographic image projected from strategically placed transmitters. He is safe in another room, and as soon as action is taken against him, a metal gate slams down over the doorway of the room the characters are in. Aybee feels a sudden wrenching in his arm as Athlos's telekinetic abilities disable the wiring powering his laser.

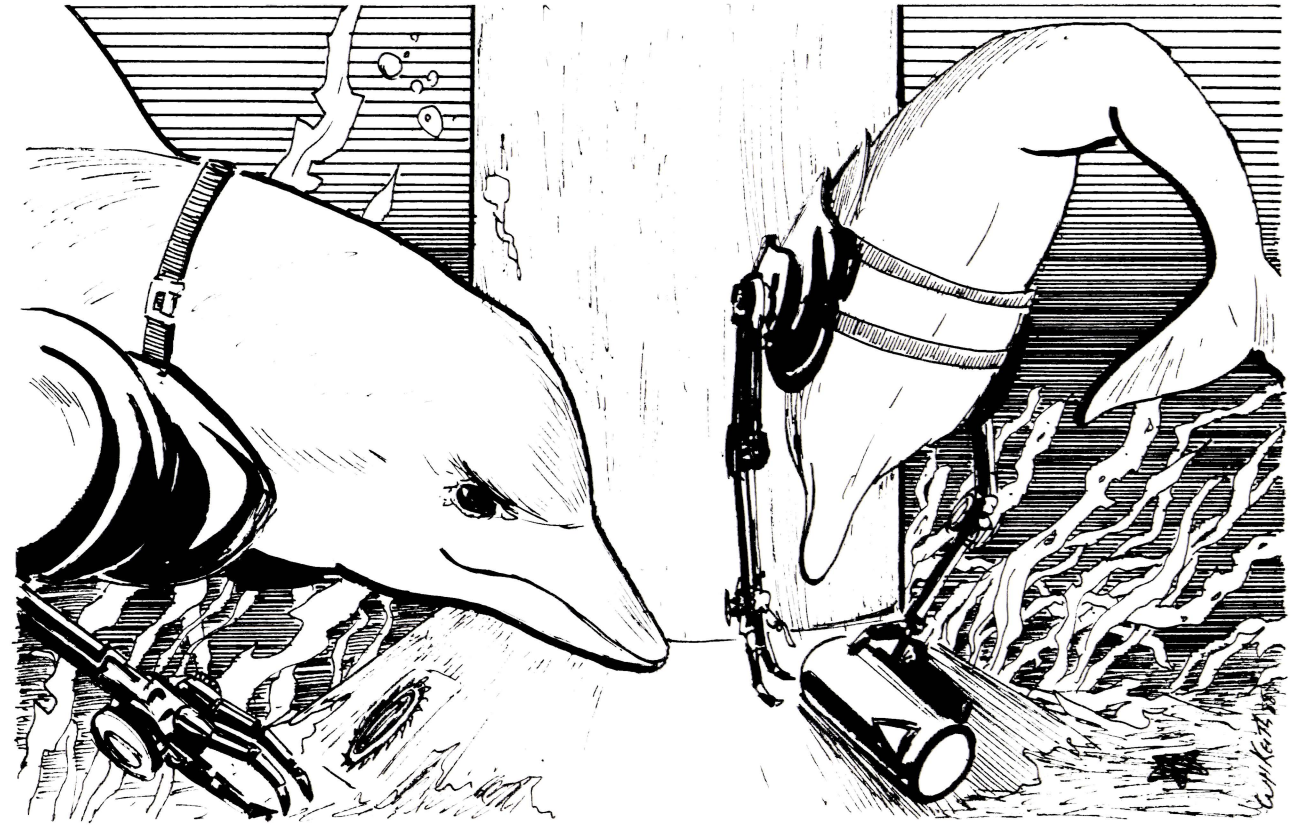
FLIGHT OUT OF EGYPT

Athlos apologizes that he cannot let the characters go, and his image fades away. A few minutes later, Widad al-Shaykh returns with a body pistol, and orders the characters from the room. As she reaches toward the electronic lock, however, she suddenly stops and tilts her head as if listening to something.

"Terrorists have bombed the seawall!" she exclaims. "We have only a few minutes to escape with our lives. You are not enemies of mine under these circumstances." So saying, she pockets the body pistol and opens the gate. "There's an emergency exit down that way," she says, pointing. "I must warn the others. Get out while you can."

The dolphins, as careless as before, have again bombed the wrong target. The characters have only a few minutes to reach high ground. Coming out through the back of the Sphinx, they must run across the ground to the pyramid, and then climb up as high as they can until they can be rescued by officials. Generate UTPs as you think appropriate.

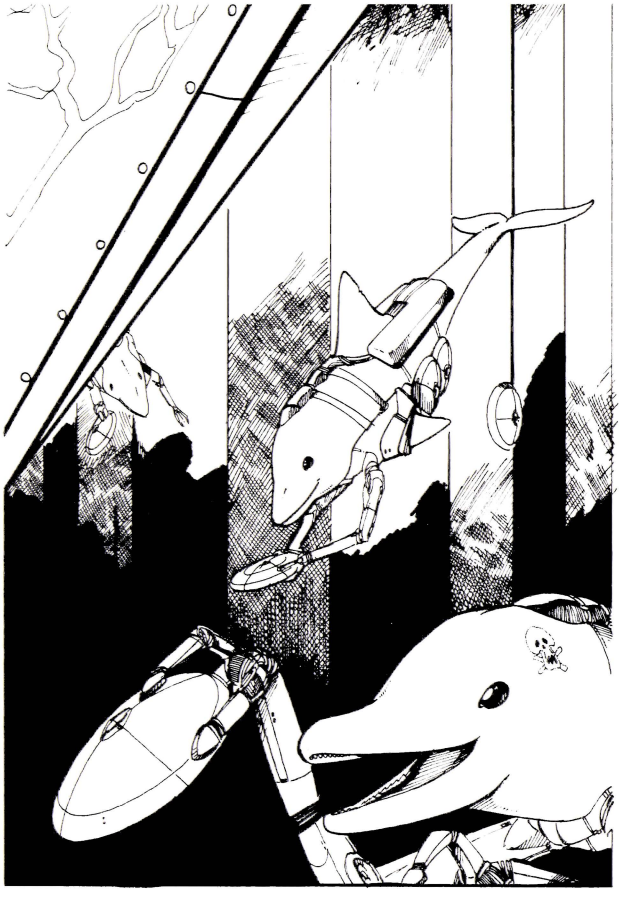
The characters have not seen the last of Peter Athlos: you should make sure that he gets away without a trace.•



Dolphins (*Tursiops galactus*)

AN "ALIEN" MINOR RACE FOR MEGATRAVELLER

—by William W. Connors



NATURAL EVOLUTION

The natural evolution of cetaceans on Terra is still something of a mystery, even to the advanced sciences of the 57th century (old Solomani dating). While the dietary patterns of modern dolphins and the structure of their teeth indicate that they are almost certainly descended from carnivores, other data, such as the structure of their stomachs and certain biochemical components, link them to ungulates (cattle and such). Current Solomani theories tend toward the former explanation.

Modern beliefs hold that, during the earliest evolution of the proto-cetaceans 45 to 50 million years ago, much of the earth was covered by shallow seas. In certain places, such as North Africa, competition for food on land was intense. In response to this, the proto-cetaceans began to forage in the water for food. As time passed, natural selection promoted those that could swim faster or hold their breath longer and the rest is, as they say, history. Similar evolutionary processes can be observed in many Terran aquatic mammals such as the seal, whale, and manatee.

GENASSIST

Each of the three major human races excels in certain areas of technology in which the others are lacking. The Zhodani, for instance, have a far greater understanding of the mind, both physically and psychologically, than either the Solomani or the Vilani. This superiority has, to a great extent, shaped their culture.

The Solomani, in turn, have brought the sciences of genetic manipulation and engineering (often called simply "geneering") to levels undreamt of in the Third Imperium or Zhodani Consulate. In addition, no other known major or minor race can match the achievements of Terran scientists in such matters. (The Ancients, while no longer extant, were at their heyday an obvious exception to this claim.)

The first wide-scale use of these technologies occurred early in the Terran 22nd century (roughly -2400 by the Imperial calendar) following their first expansions into interstellar space. As they fought a long series of wars with the crumbling First Imperium, the Terrans found themselves acquiring more and more alien worlds. In order to promote their colonization, the Solomani government established a semi-autonomous foundation known as GenAssist which was charged with the adaptation of native Terran life forms to alien climates.

After a few initial mishaps, one of which almost destroyed the natural ecology of Ishimshulgi in Sol Subsector, GenAssist began to produce great breakthroughs in the understanding and implementation of genetic engineering techniques.

While the scientists at GenAssist were hard at work making physiological modifications to Terran livestock, agricultural crops, and similarly vital colonial commodities, a splinter group within the organization began to look at other possibilities. Over the next several decades, under the guidance of Dr. Craig Carbone and, later, Dr. Victor Haerinck, modifications were made to the brains of several Terran life forms. By far the most successful of these were the improvements made to various cetacean races.

Early on in their research, they abandoned work with the species *Orcinus orca* which, although progressing toward true intelligence very rapidly, was deemed to be far too large (averaging 9.5 meters in length) to be easily transported offworld. Although some fought the decision, GenAssist directors held fast that the firm's charter specified that all work was to be aimed at the promotion of offworld colonization projects.

One by one, other programs fell behind in progress and were dropped from the project. In the end, only the species *Tursiops galactus* (which had begun as *Tursiops truncatus*) was left. With the full attention of the GenAssist Sophontology program focused on them, the dolphins rapidly attained true intelligence and, in -1988, just prior to the collapse of the Rule of Man, a handful of Dolphin colonies were seeded along the rimward frontiers of what is now the Solomani Sphere.

In the centuries since, they have proven themselves to be fantasticaly adaptive and very loyal to the Solomani government. The reason for their loyalty has little to do with

political philosophies, as the Dolphin psychology (see below) is radically different from that of their human patrons. Each and every Dolphin is very aware that the Solomani gave them the gift of sentience and, as such, they feel indebted to the Terrans for this. The Solomani, it might be noted, have done nothing to discourage such thinking and, indeed, have fostered it.

How could GenAssist be so successful in creating intelligence in these creatures? Some researchers point to the Ancients as being early assistants to the effort. The Ancients are known to have manipulated Terran canine stock to produce the Vargr race, and it is possible that the dolphins were already close to sentience thanks to a similar program that was never completed. In any case, GenAssist's scientists learned a great deal from this first success and were quick to capitalize on it.

By the close of the Third Imperium's first millennium (the 56th century by the Terran calendar), GenAssist had virtually reached the status of a megacorporation within the Solomani Sphere. Over two dozen other species from various worlds have been elevated to intelligence under their guidance and each is now, more or less, a loyal member of the Terran Confederation. None of the other major races, human or otherwise, currently maintains efforts to foster new sentience in animal species.

PHYSIOLOGY

The typical male specimen of *Tursiops galactus* measures between 2.75 and 3.95 meters from the tip of its powerful flukes to its snout. Females tend to be somewhat smaller, on the average.

The average weight of a male Dolphin runs in the neighborhood of 100 to 150 kilograms and, again, females tend to be rather lighter due to their smaller size.

Their skin, which is very smooth to the touch, tends to be a purple-black along the dorsal surface, shading to white or light gray on the underside. The eyes are located in the darker section of the face.

The brain of a typical Dolphin is 1.5 times the size of a human's, although this should not be taken as an indication of greater (or lesser) intelligence. For the most part, this difference is attributable to the greater mass of the Dolphin body.

The original dolphin lifespan was about 20 years, but the enhanced Dolphins typically live 50 to 60 years. Anagathics are available, with prices, benefits, and risks similar to those used by humans.

DIETARY HABITS

The diet of geneered Dolphins is not unlike that of their semi-sentient ancestors in that it is wholly carnivorous in content. Obviously, modern Dolphins have access to a greater variety of foodstuffs, however, and they take great joy in sampling new foods and experiencing new tastes. A typical Dolphin requires 110 calories per kilogram of mass per day to sustain itself at normal activity levels. This is far greater than the average human need of roughly 50 calories per kilogram per day. Normally, that amounts to food consumption equal to 10% of the Dolphin's own weight per day.

There are many reasons for a Dolphin's greater caloric intake requirements. Perhaps the most important of these is the fact that, on the average, sea water has a thermal conductivity over 25 times greater than that of air. Hence, the Dolphin loses far more of his body heat to the environment than non-aquatic lifeforms.

HEARING

The vast majority of information which a Dolphin gathers about its environment comes from its very accurate echo-location system. Dolphins who have lost the use of their eyes, in fact, have only a minimal reduction in their overall sensory input. This is not due to any weakness in their sight, only to the fact that their sonar system is of such great accuracy.

Dolphin hearing is able to detect sounds ranging in pitch from 150 to 150,000 Hertz (Hz). By way of contrast, cats (a domestic pet popular among both the Solomani and Vegans) can detect sounds as high as 50,000 Hz, rats and similar rodents may perceive frequencies as high as 90,000 Hz, and numerous species of bats can sense sounds of up to 175,000 Hz. The typical range for human hearing extends only to 20,000 Hz.

EYESIGHT

Although many people unfamiliar with Dolphin physiology believe that the eyesight of these sophonts is weak because of their dependance on an echo-location system, this is not the case. In fact, Dolphin eyesight is fairly keen. It should be noted, however, that it is adapted for vision in a different medium than human eyesight.

Two factors contribute greatly to the Dolphin's visual perception of his environment. The first of these is the fact that light drops off quickly in water, causing the depths to be dimly lighted, if not wholly in darkness. Dolphin eyes have highly developed rods in the retina, however, which enable them to make the most of what minimal lighting there is beneath the surface of the water.

Second, light waves passing through water are subject to a great deal of reflection (as opposed to the refraction which they undergo in air), requiring the Dolphin to compensate if it is to see things clearly. In order to counter this, the Dolphin's eye is structured somewhat differently from a human's. The lenses, for example, are very globular and, hence, convex in nature, so they reverse the negative effects of aquatic reflection. This same structure, however, makes the Dolphin very nearsighted when out of the water. In order to counter this, many Dolphins wear corrective lenses when not in a Travel Suit (which is able to counter this effect with a special visor).

RESPIRATION

Typical members of *Tursiops galactus* are able to make dives of up to 15 minutes in length without respirator assistance. In practice, many wear tanked air supplies to allow a greater duration of underwater operations. When swimming near the surface, Dolphins breathe two to six times per minute normally. After surfacing from a long dive or period of exertion, this rate may be increased to as many as eight breaths per minute.

Unlike humans, who make use of only 12.5% of the capacity of their lungs in normal respiration, Dolphins almost completely empty and fill their lungs with every breath. In addition to this, they store much more oxygen in their blood

and muscle tissues than humans do, which allows them to make such prolonged dives.

SWIMMING

A single glance at the body of a Dolphin is enough to reveal the perfection of their streamlining. They have no external protrusions which would retard their velocity when swimming and, as such, can attain speeds far greater than many other forms of aquatic life. Nowhere in explored space is there a creature so perfectly evolved in a hydrodynamic sense. As a rule of thumb, Dolphins can maintain a speed of 40 kilometers per hour when swimming and can attain burst speeds half again as fast.

Although they do not normally dive to depths greater than about 30 meters, healthy Dolphins can go much deeper without harm. While a normal human can dive to only about 125 meters unprotected, Dolphins can go as deep as 200 meters in extreme cases.

In addition, the physiology of a Dolphin is such that they are wholly immune to caisson disease (the bends) which is a constant hazard to human divers.

LANGUAGE

When speaking among themselves, Dolphins use a language known as Delphinese, which is composed of various clicks, rasps, and whistles. In many cases, the whistles pass beyond the range of human hearing and into the ultrasonic. Without electronic assistance it is virtually impossible for a human being to speak or understand this language.

For communication with humans, however, most Dolphins speak ordinary, if often very flowery, Galanglic. They tend to repeat clicking sounds (like "k" or "t") several times (almost stuttering), and sounds like that made for a "w" tend to turn into high-pitched whistles.

PSYCHOLOGY

At first glance, it might seem that Dolphins and Solomani could not help but see eye to eye on most issues. After all, both species evolved on the same planet and have shared much of their history together. In actual fact, however, nothing could be further from the truth.

Dolphin culture is based on a belief in total equality. Everything is shared equally and each citizen is entitled to the full benefits of the society's capabilities.

They are unable to understand many concepts which seem almost absolute to humans (or, indeed, to most other known races). For example, Dolphins cannot conceive of "ownership". If one Dolphin has a tool which another needs, the latter simply takes it and returns it to its place when he has finished with it. It is customary to ask if the current holder has completed use of the object first, but this is not akin to requesting permission to "borrow" something.

Further, Dolphins cannot grasp the concept of owning land. In their native environment, they point out that "the sea is always in motion, so how can one claim that a portion of it is his?". The land, they remind humans, is also always in motion (though far more slowly) and a similar argument follows. Trying to explain human views on such subjects is both irritating (to the human and the Dolphin) and futile. Their psychological structure simply will not accommodate such thoughts.

This viewpoint can result in problems when Dolphins interact with other life forms who do not share their philosophical outlook. On starships, for instance, Dolphin passengers have been known take objects (such as jewelry) which appealed to them without asking permission if the object did not seem to be currently in use. If confronted with the "theft", they gladly admit to it and cheerfully return the object so long as they have completed "using" it.

Dolphins who have spent a great deal of time among other races eventually learn that this is considered improper by many others. At this point, they usually modify their behavior and ask to use things which others seem to be attached to. In such cases, they think of this as a game which they must play in order to "fit in".

While on the subject of Dolphin psychology, it is interesting to note that Dolphins have the same chances for having psionic abilities as do humans, although of course this fact is not widely known or discussed.

SOCIETY

In most cases, Dolphins do not gather in large communities but live in extended family groups of between 15 and 20 members. To determine the exact number of family members which are in a specific character's group, roll 5D.

These family groups interact frequently, however, and it is not uncommon for two or more of them to dwell very near to each other. They simply do not have a structural society such as is envisioned by humans and similar life forms. This means that, in most cases, colony worlds which are composed primarily of Dolphin populations are classified by the Scouts as having a government code of 0 (anarchy).

The actual number of individual Dolphins varies widely from world to world. On Terra, the original dolphins are extinct (they still thrive on a few other worlds, though), and the latest census counted about 2.5 million Dolphins.

Persons who are familiar with true communism (as opposed to the historical totalitarianism which claimed to be communist in nature) should consider the Dolphin race to be just that. They are totally free of any class-based or capital-based society when left to themselves. However, as many must interact with other peoples from time to time, some Dolphins are forced to deal in capitalist terms. When they do so, they are often confused and unsure of themselves. One might even say that they are "in over their heads".

TRAVEL SUITS

While Dolphins are certainly well adapted for aquatic environments, they are handicapped when removed from them. In order to overcome such difficulties, science has come up with a number of devices which make life much more pleasant for Dolphins who must function out of the water.

The first and by far the most important of these is the Travel Suit (or TeeSuit). This garment is a combination gravitic vehicle and environment suit, which contains a superhumid atmosphere for the health and comfort of its wearer.

Early versions, available at tech level 12 and costing Cr125,000, provide fairly comfortable support for up to 12 hours and weigh 12 kilograms (when the grav module is

turned off). By tech level 15, the cost has increased to Cr150,000 but the suit has improved to the point where it provides very comfortable accommodations for up to 48 hours and weighs only 7 kilograms.

In all cases, the helmet includes a polylucent cuprothallium visor with a full heads-up display capability which is tied in to an on-board computer/communication array. This system is equal to a hand computer in data processing power with a regional (500km) range audio/video transceiver capability. The suit is capable of flight at up to 100 kph. Normal cruise speed is only about 75 kph and nape-of-earth speed drops to 20 kph. In combat, the suit provides protection equal to cloth-1 at tech levels 12 or 13 and as cloth-2 in more advanced versions. The TeeSuit provides its wearer with complete protection from temperatures ranging from -100° C to +100° C and pressures of up to 5 atm.

In addition, all TeeSuits can be fitted with a set of waldos (see below) for the manipulation of objects built for human hands. The cost and mass of such modifications is simply added to that of the TeeSuit itself.

WALDOS

One serious handicap which Dolphins suffer is their lack of manipulatory appendages. This is unheard of in naturally occurring sophont species, but is not uncommon among the Solomani's so-called "enhanced races". Once again, human scientists have come to the aid of their client race with the invention of mechanical manipulation devices commonly known as waldos.

Early versions, first created at tech level 9, are worn as a harness (or mounted on the outside of a travel suit) and controlled by movements of the tongue and head. They are very clumsy, resulting in a -4 penalty to the user's Dexterity whenever a task roll is made. Their strength is also quite poor, allowing them to manipulate no more than 25 kilograms with safety. Greater masses may be moved, but there is a danger of system failure. Tech level 9 waldos cost Cr150,000 and weigh 20 kilograms.

At tech level 12, however, combined advances in medical and robotic sciences allow the surgical implanting of neural control plugs in the skulls of Dolphins. Waldos are then plugged directly into the brain of the user and directed by nerve impulses. Waldos operated in this manner are far less clumsy than their earlier ancestors, reducing the penalty for their use to only a -2. At tech level 13 this falls again to a -1 and at still higher tech levels it is completely overcome. Furthermore, the strength of the manipulators is enhanced to the point where objects massing up to 100 kilograms can be freely maneuvered. The operation to install a plug costs Cr150,000 at tech level 12 and drops by Cr15,000 at each subsequent tech level. Tech level 12 waldos cost Cr250,000 and mass 10 kilograms.

CHARACTER GENERATION

Although a fully detailed description of Dolphin character generation is beyond the scope of this article, the following guidelines allow referees to generate them with ease using the tables presented in the **Megatraveller** *Players' Manual.*

ATTRIBUTES

When rolling to determine the starting values for a Dolphin's attributes, apply a +2 modifier to Endurance and Strength characteristics and apply a -4 to Social Standing. The former adjustment is due primarily to the Dolphin's large size and natural stamina, while the latter reflects the lack of such a concept in cetacean culture. Dolphins with high Social Standing scores are simply assumed to be well known, but have no special pull or power over others.

HOMEWORLDS

Apply a DM of +1 to the roll for size, a +2 to roll for atmosphere, and a +3 to the roll for hydrographics. If the hydrographic rating is not "Water World", then the planet is assumed to be a human colony with Dolphins as a secondary element of the population. In such cases, the rolls for population, law code, and tech code are unchanged.

If the hydrographic code is "Water World", then the character is assumed to be from a planet which is primarily inhabited by cetaceans and may or may not have large numbers of humans there also. If this is the case, apply a –2 on the roll for population and law codes and a +2 on the roll for tech code.

CAREERS

Dolphins find military careers somewhat distasteful, but are not foolish enough to believe that their lack of a military would prevent others from raising (and periodically using) similar forces. As such, they can enter careers with the Army, Marines, and Navy, or as Flyers, Law Enforcers, and Sailors. In any but the last, however, they must accept a -2 DM on enlistment rolls.

Although it is unusual, some Dolphins manage to pursue careers as bureaucrats (usually working for GenAssist) or as Rogues. Dolphin rogues are usually the last survivors of a family which has been wiped out or are acting as terrorists defending the heritage of their Solomani "creators" behind Imperial lines. The sanity of such characters is often somewhat in doubt. In both cases, they receive a -1 to enlistment rolls.

Dolphins cannot become Barbarians as all known Dolphin worlds are scientifically advanced. They are also unable to become Merchants (since the concept of trade and commerce is unfathomable for them), Nobles (since they believe in the absolute equality of all), or Pirates (for much the same reason that they cannot be Merchants).

Dolphins enjoy the freedom of space and are naturally curious creatures. As such, they find careers as Belters, Scientists, or Scouts to be exceptionally rewarding. Always apply a DM of +1 when a Dolphin is trying to enlist in any of the above professions.

All other fields are open to Dolphins and require no modifications on any of the rolls for normal career resolution.

MUSTERING OUT

Whenever rolling on the benefits table, referees and players must keep in mind that items received do not belong to the specific character, but rather are considered to be in his possession. Although the difference may seem trivial at this point, it is very important. Consider the following situation: a Dolphin character receives a starship as a mustering

out benefit. After using it for some time, the character encounters a family of Dolphins who have been "stranded" on a world and now lack the resources to return to their home. It would not be out of character for the character to turn over the ship to them if their need for it seems to be greater than his own.

Any benefit rolls which result in the receipt of some sort of weapon may be taken as a TeeSuit (without waldos). Additional results of the same type can be taken as a set of waldos or additional TeeSuits. If the character has a TeeSuit or set of waldos they may also use weapon results as skill in the use of one or the other. To clarify, a Dolphin with a TeeSuit could use weapon rolls to increase his skill in TeeSuit Operation but not to improve Waldo Operation skill if he did not also possess a set of waldos.

When rolling on the benefits table, all monetary results are reduced to 10% of their printed value to represent the total lack of interest in or understanding of money on the part of Dolphin characters.

DEFAULT SKILLS

All Dolphin characters receive Waldo Operations-1 and TeeSuit-1 as a result of their basic training with such devices. Other default skills are exactly as listed in the *Players' Manual.*

UNAVAILABLE SKILLS

Dolphin characters who receive certain skills must re-roll them at once. If the second result indicates the same or another unavailable skill, then the roll is lost and the generation process continues normally.

Skills unavailable to Dolphin characters are: Bribery, Broker, Equestrian, Gambling, Legal, and Trader.

SKILL ACQUISITION

Although Dolphin characters are able to learn almost any skill open to humanoid characters, there are some modifications which must be made to the skill list for their generation process.

In addition to the skills listed below, there are certain other factors which must be kept in mind. In many cases, the Dolphin's use of a skill depends wholly on his access to and experience with waldos. For example, although it is possible to mount a firearm on the outside of a TeeSuit, it is far from common practice. In most cases, a Dolphin making use of a weapon holds it in waldos. Whenever a Dolphin character's use of waldos is vital to a task, his skill with such manipulators is the maximum for any die modifiers. Thus, if a Dolphin has laser pistol-4 and waldo ops-3, the skill modifier would be only +3 when using the weapon with waldos. The same holds true for many other skills, but liberal use of common sense will normally resolve any unusual situations which come up during a game.

Waldo Operation: Whenever a Dolphin character receives a +1 Dexterity during character generation, he may select waldo operations as an alternative. Waldo operations is simply familiarity with the design and use of such manipulatory devices by the character. It can be applied whenever a task roll is made to determine successful use of waldos.

TeeSuit Operation: At any time during the career resolution process when a Dolphin character is able to obtain vacc suit or vehicle skills, he may opt for TeeSuit operation instead. In game terms, this is nothing more than experience with the use and maintenance of travel suits. It can be used to improve any task roll made in which such expertise might be valuable.

Underwater Combat: This is a specialized form of brawling which may be taken in lieu of that skill whenever a Dolphin character receives it. In combat terms, it functions just as brawling skill and can be employed whenever the character is fighting in an aquatic environment.

SUCCORING

In each of the Solomani "enhanced species" there are some traits which, although not desirable, can not be bred out for one reason or another. With Dolphins, this is most obvious in their instinctive reflex to come to the aid of injured or endangered cetacean companions.

Commonly known as "rescue fever" or "succor syndrome", this natural reaction to the distress calls of another Dolphin is wholly overpowering. Although it is possible for a Dolphin to escape the effects of this siren call, it is not easy. Remaining calm and rational while hearing such sounds is a task:

To avoid being overcome by succor syndrome:
Formidable, (any combat skill), Edu, instant (fateful)
Referee: Dolphins in the grip of succor syndrome are reduced to 0 in their mental attributes as they have effectively reverted to a pre-sentient animal for the duration of the panic.

If a Dolphin succeeds at the above task, he may act in a normal manner and take whatever steps he wishes to secure the rescue of his endangered peers (or abandon them, if that seems the best thing to do). If he fails, however, then he is overcome by the syndrome and will devote his every erg of energy to rushing to the side of those in peril.

In some instances, succumbing to the syndrome is not overly unfortunate. If the danger has passed by the time the Dolphin arrives, or is of a fairly simple matter which can be dealt with by the frantic rescuer, then all will be well and the Dolphin will soon return to normal. If, however, the hazard is on-going (i.e., the injured Dolphin has been shot and the attacker is still in the area) or is of a complex nature, then the newly arrived Dolphin may also fall victim to the threat.

On Terra, in times long past, Dolphin and whale hunters often injured a single individual and then waited for others to come to its aid. While the ethics of such tactics are certainly open to condemnation, this technique proved to be highly effective with many species of cetaceans.

DOLPHIN STARSHIPS

To enhanced Dolphins, the vast reaches of space are as exciting and alluring as the wide oceans of Terra were to their distant ancestors. It is not an uncommon thing to see a starship operated by a Dolphin family which travels the space lanes in search of beautiful and mysterious sights. In almost all cases, these are scouting or laboratory vessels, and the day-to-day operating costs of the ship are picked up by a company or similar patron.

Humans who travel onboard a Dolphin-operated starship may find the experience somewhat uncomfortable for many reasons. The most instantly obvious of these is the fact that such craft maintain a zero gravity field onboard them at all times (even while on the ground) so that the crew can move freely about without TeeSuits. To most travellers, a ship without artificial gravity is either primitive or in need of major repairs.

Human travellers will also be quick to notice that the air on a Dolphin vessel, although of standard nitrogen-oxygen composition, is very humid. In this manner, the crew maintains normal moisture levels for their health and comfort without having to keep compartments flooded. The latter method would be expensive in terms of mass and hazardous to the ship's systems in the event of leakage.

Controls are operated either with waldos or by direct cybernetic links via the Dolphins' neural plugs as described above. Ships which are equipped to run on input from neural plugs require additional electronic systems which cost 1% of the ship's total value. Although one might think that such direct interfacing was a more effective way to operate a starship than normal control panels, this is not the case. The delay caused by the computer processing of such incoming command signals makes the two methods roughly equivalent.•

SUGGESTED READING

A fair amount of popular science-fiction literature has dealt with dolphins (and other cetaceans) as fully sentient creatures. Perhaps the most noteworthy (and my personal favorite) would be David Brin's Uplift series. Published by Bantam Spectra Books, these works are entitled *Sundiver*, *Startide Rising*, and *The Uplift War*. Although only *Startide* deals primarily with dolphin characters, the other two provide a great deal of flavor for the use of a genetically enhanced species in any **Megatraveller** campaign.

Larry Niven's *World of Ptavvs* and Alan Dean Foster's *Cachalot* also feature cetaceans as primary characters and should not be overlooked as inspirational sources for players and referees.

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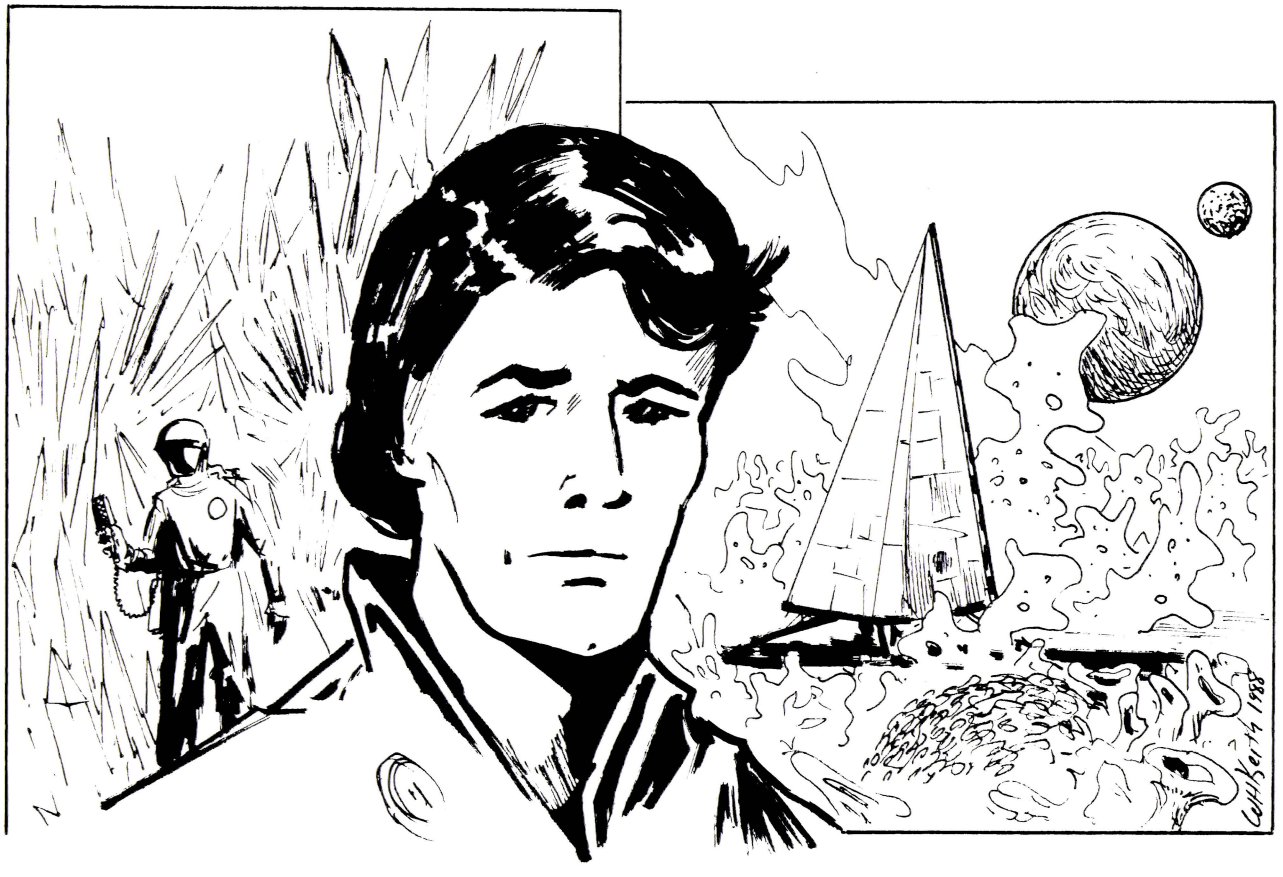
The Trouble with Kids

MEGATRAVELLER ADVENTURE

—by Gary L. Thomas



PLAYERS' INTRODUCTION: STEVE SHELLEY'S STORY

Location: Peraspera (2028 B7A2536-D)
Date: 288-1114

I guess I'm a sucker for a sob story. We were orbiting Peraspera in *Donne's Mistress*, doing a standard update for the Survey, and it couldn't have been more boring. You'd think that over 114 years things would change, but the only thing we knew of was a volcano in Durkstreif — and that wasn't very interesting because to me the whole planet had about the climate of a volcano anyway.

So we're on the fourth pass and the comm picks up an E-signal from the surface — normal mail, but one message is labeled "personal for the captain". Naturally, Jensen read that one before he passed the batch on to me, and when I didn't mention it to the crew, Jensen and Diego came to me about it. "What are you going to do about this kid, Steve?"

I figured I may as well let them tell me what they wanted, so I played dumb. "What kid?" I asked.

"The one in that letter you got a couple of hours ago," Jensen answered. I looked him square in the eye and told him that I hadn't gotten around to reading it.

Jensen looked at Diego, and Diego looked at Jensen, and I looked at the both of them, and Diego finally broke the silence. "Steve, there's this kid down on Peraspera, lives under the big dome, and he sure needs our help."

"Diego," I said, "half the Imperium probably needs our help right now. But Strephon wants all his little Scouts to keep busy in the Rim. We have 18 systems to survey before we report back to Ganesh, and I haven't seen my wife in 14 months."

"Sure, Steve, we understand all that," Jensen said, "but this is a case where we can do something. This kid, Dave Berringer, has always wanted to be a Scout — you gotta admire him for that — but things just didn't work out for him."

I looked at Jensen with my best hangdog look, but I knew what was coming — I'd already made my decision, anyway. "So what's that got to do with us?" I asked.

Diego spoke. "This kid's from Meshan, and growing up he always wanted to be a Scout, so when he got old enough, he left home and travelled low berth to Prometheus so he could join up. But he flunked the physical — Andre's Syndrome, they said it was, settled in his kidneys — probably would never cause a problem in his life, but the Service wouldn't take him."

By this time, Jackson and Chevalier had joined the conversation, so I did my best to look concerned and leader-like, and wheedled the whole tragedy out of them. Dave

Berringer had talked about the Scouts so much to his family that he didn't know what to do when he was turned down. What he finally decided on was to pretend to join the Scouts. He moved to Peraspera, got a job in an office, and kept writing to his family about the thrilling adventures he was having in the Scout Service. He found people on other worlds who would re-post his Xboat messages, so the kid could tell his folks he was assigned to these places.

Now he was in trouble. He'd sent a message that he was posted to Peraspera for special training, and that he'd be there for three months, and meanwhile his mother won some contest or other that let her travel on Tukera liners for free for a year. She thought she would surprise him, so she waited to notify him until she was but one jump away, and now the kid had to face the fact that his mother would arrive on the *Ocean of Milk* the next day, and Dave wasn't looking forward to her discovering that he wasn't a Scout.

So he wrote to me, asking if there wasn't some way we could take him aboard for a few hours and let him wear one of our uniforms when his mother showed up.

The men finished their story, and I knew they'd think I was a black-hearted soul if I didn't let this kid aboard. I had the authority to do it, and Jackson was quick to point out that in Agidda I welcomed an all-female dance troupe on board for a tour — "good for the men's morale", I'd said at the time — we were an all-male crew then.

"Don't you think it would help our morale now if we could help this kid?" Jackson asked.

"Not as much as eight more dancers would," Chevalier said. He started to snicker, but realized the other men were serious about this and let up.

My crew looked at me, and I suppose a few of them were wondering if I might say no. But I'd read the kid's letter through (more than once, if truth be known), and I knew just what kind of a jam he was in. If his mother was anything like mine, he'd never live it down at home if she saw what his life was really like.

The crew let out a cheer at my decision, Jackson and Jensen took an air/raft to the surface and brought the kid back, Morris found a vacc suit in stores that fit him, and everyone was like one big happy family.

REFEREE'S SYNOPSIS

Once Dave Berringer is brought on board, things go fine for a while, but the kid is a little too precocious, and manages to get away with the survey cutter, taking it to the surface and eluding ship's sensors in the process. It's not too clear at first whether he took off by accident or on purpose, but it's now the duty of the crew to look for him before he causes any more trouble.

In fact, the action was deliberate and carefully executed: Berringer works for SolSec, the Solomani Security agency fighting undercover for the independence of the Solomani Rim. Peraspera is home to a Solomani military meson research station; its activities cannot be shut down at this stage of the research, and the *Mistress* is bound to detect the unusual activities at this site during its survey. The solution hit upon was to distract the crew and disable the vessel's sensors if possible.

Solomani Security (SolSec) has as its mission "the maintenance and protection of the Solomani Cause against all enemies," and it accomplishes this mission by recruiting agents from the general Solomani population. SolSec is independent of the military and the Solomani Party, but is dedicated to the survival and the prosperity of each, so long as each pursues the goals of the Solomani Cause.

In this situation, SolSec has set up the whole operation, forging materials that lend credence to Berringer's story and carefully coaching him in how he should act. If Berringer had failed in his efforts to get on board and disrupt the vessel's operations, SolSec had a backup plan ready — certainly a more violent plan — but this way is better: Berringer will not only disrupt the crew of the *Mistress* in their attempts to survey Peraspera, but he will also embarrass the Imperial Scout Service when news of this incident becomes known.

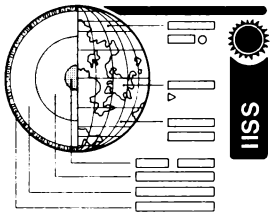
The player characters for this adventure consist of a Scout crew for a *Donosev* class survey vessel, such as that in DGP's *Grand Survey* or GDW's *Fighting Ships*. Players can roll up new characters or use old ones (you'll then need to change the names in the introduction to match), or you can distribute characters for the players to use.

After reading the introduction to the players, you can proceed by playing out Berringer's tour of the *Mistress*, if you desire. It is not uncommon for Scout vessels to allow visitors on board during operations such as this one; the mission is routine, the crew enjoys showing off, and the rapport between Scouts and new civilian friends enhances the reputation of the Service in the Imperium. Eventually, one of the crew members on the bridge notices that someone is taking the vessel's cutter, *Sleeping Beauty*, from its bay. Efforts to halt the craft are futile; the differences in respective agilities and speeds are too great. The *Mistress* soon loses track of the *Beauty* as it heads for the surface.

Alternatively, after reading the introduction to the players, you can just describe the ensuing events: the cutter is gone, and the characters must now find it using the *Mistress's* sensors.

Shelley's impression that Peraspera is one big volcano is accurate: typical surface temperature is 50°C, and the atmosphere is unbreathable because of its high sulfur content. Scout vacc suit uniforms are in order here, and surface explorations will be fraught with danger.

On the planet's surface, SolSec agents are waiting for the Scouts to detect the *Beauty* and come to investigate. Depending upon the mood of your players, you can treat this scenario as a simple puzzle to be solved (using ship sensors), as a search-and-rescue mission of the missing Dave Berringer, or as a shoot-em-up against waiting SolSec agents.•



The Terra System

A TRAVELLER'S OVERVIEW

—by William W. Connors

(*Author's Note:* All dates given in this article are in Terran standard dating. To arrive at an approximate conversion to the standard Imperial calendar date, simply add -4518. To illustrate, the first Solomani manned landing on the surface of Luna was made in 1969; 1969 plus -4518 equals -2549, which is the corresponding Imperial date.)

MERCURY

(Sol Beta/G30046A-E)

The innermost of Terra's neighbor worlds, Mercury is named for the winged messenger of the gods in ancient Solomani mythology. The analogy is apt, as this world has an orbital velocity of almost 50 kilometers per second, the fastest in the system. Mercury orbits at a distance of 57.6 million kilometers and completes one revolution about the sun every 87.969 standard days. Its orbit is inclined 7° to the plane of the ecliptic and has a fairly high eccentricity of 0.21, the second greatest in the system. Mercury is roughly 5,000 kilometers in diameter and has a surface gravity of 0.28 gees. The planet completes one revolution on its axis every 58.66 days.

The first Terran spacecraft to visit Mercury was Mariner 10, which was launched by the United States of America in 1973. There is archaeological evidence to support a belief that the Ancients may have briefly explored the planet during their reign some 400,000 years ago.

By the end of the Solomani's first century of space travel in 2060, they had established bases throughout their solar system. On Mercury, they located a solar observatory which has, over the centuries, grown to become one of the most advanced of its kind in explored space.

Named for the first Solomani astronaut to set foot on the surface of the planet, the Syuki Solar Observatory has a normal operating staff of roughly 10,000 persons. During times of peak solar activity, this can climb to as high as 20,000.

VENUS

(Sol Gamma/G8B0168-E)

Orbiting at a distance of roughly 108 million kilometers from its primary, Venus is a hostile and dangerous world which has, even in the 57th century, been only partially explored.

Venus orbits Sol once every 224.7 standard days and, although retrograde, its orbit is the least eccentric of any planet in the system. Venus rotates on its axis once every 243.2 days and has a mean orbital velocity of 35.2 kilometers per second. With an atmosphere that is roughly 96% carbon dioxide at a surface pressure of over 90 atmospheres and a mean temperature of over 425° C, this world is a classic example of a runaway greenhouse effect.

For centuries, the Solomani believed that the hostile climate on Venus was a natural outgrowth of that planet's evolution, but in 2830 a manned expedition to the surface came across evidence of long-extinct life on the surface of the world. Archaeological research in the centuries since has turned up a great deal of information and proven beyond a doubt that Venus was once a world somewhat similar to prehistoric Terra. Extensive evidence has been found indicating that the Ancients began a terraforming operation, beyond anything which has been attempted by the Third Imperium, in an attempt to transform Venus into a lush and temperate world which they could colonize and exploit. Prior to the completion of the project, however, the Final War which destroyed the Ancients erupted. It seems that the terraforming of Venus was abandoned just as it neared a critical juncture in its evolution and the world was allowed to degrade into the hell which it has since become.

Currently, the surface of Venus is not home to any permanent manned settlements. An orbital science station has been established here, however, which maintains a crew of between 50 and 75 archaeologists seeking to understand the workings of the Ancients on Venus. Although there was clearly a great deal of the Ancients' technology abandoned here, it has been almost totally destroyed by the planet's devastating climate. Now, only bits and pieces remain to tell the tale of an engineering project which makes even the greatest efforts of Imperial science seem feeble and childish by comparison.

LUNA

(Sol Delta Ay/F20076C-F)

Luna, the only moon of Terra, orbits the Solomani homeworld once every 27.322 standard days at a distance of roughly 375,000 kilometers. It is nearly 3,500 kilometers in diameter and has a surface gravity of 0.16 gees. Luna is tidally locked with Terra, always keeping the same hemisphere toward it. As such, the average Terran citizen is able to instantly recognize the surface which faces Terra, but is wholly unable to identify Luna when viewed from the other side.

Terran explorers first visited Luna in 1969, and it has since been a major target for their space programs. Even during the Long Night, Terra did not abandon her nearest neighbor as she did the other worlds in the system. Like the other planets in the system, Luna has been ruled by the Imperial military since the end of the Solomani Rim War.

The 8,000,000 citizens living on Luna are concentrated in three major population centers: Archimedes, Copernicus, and Plato. In addition, small portions of the population (less than 10% of the total) dwell at the Sinus Iridium and Montes Apenninus mining stations, the Clavius and Farside research facilities, and the Imperial Naval base at Theophilus.

A large academic community has grown around the crater Plato, which is home to the University of Luna. With a keen interest in high energy physics and astronomy, this school is considered to be one of the best in its field. Farside Station, which concerns itself mainly with radio astronomy and cosmic ray research, is a branch of the University of Luna but operates in conjunction with the military due to the nature of some of its researches.

Luna is popular as a vacation spot for residents of Terra, and a major portion of the world's economic support comes from an influx of tourists' credits.

MARS

(Sol Epsilon/F430560-F)

Mars, the fourth planet out from Sol, orbits at a distance of roughly 225 million kilometers. It completes one revolution about its star every 687 days and one rotation on its axis every 24.4 hours. Mars is 6,720 kilometers in diameter and has a surface gravity of 0.38 gees.

When first explored by the Solomani in the 21st century, the Martian atmosphere was composed mainly of carbon dioxide and nitrogen, with traces of water vapor and oxygen, at a surface pressure of less than 0.01 atmospheres. Terraforming operations begun some seven hundred years ago (and still underway) have done much to improve the climate of this once barren world. Although the atmosphere is still far too thin for breathing by human beings, it now contains much more free oxygen and less carbon dioxide. Within the next century, it is expected to pass the upper limits established for trace atmospheres and be listed as "very thin".

Up to this point, the program has been slowly building momentum and changes are now becoming more and more pronounced. Doctor Kathryn (Kitty) Foxx, current director of the Martian Restoration Project, has stated that she hopes to see "honest to goodness thunderstorms" on Mars by the end of her lifetime.

Despite the harsh conditions found on Mars, it was the target of a multi-national colonization effort by the Solomani prior to their discovery of jump drive. Although the colony was abandoned during the Long Night, it has since been reestablished and is now holding a steady population of almost 7,500,000 persons. Roughly 15% of this number is made up by the residents of an Imperial Marine station, located on the Elysium Plateau, and the associated civilian support personnel.

Mars originally had two asteroidal moons, Phobos and Deimos, which were of little importance prior to the start of the Interstellar Wars which brought down the First Imperium. During that conflict, the smallest (Deimos) came to house a major naval base which played an important role much later in the Solomani Rim War. In 5520, when the Third Imperium took the Sol system, a massive Naval bombardment shattered the moon and dealt a nearly lethal blow to the Solomani defenders.

PLANETOID BELT

(Sol Zeta/F00066B-E)

Sol's fifth orbital position is taken up by an estimated 30,000 asteroids and planetoids of various shapes and sizes. Among the first targets of Terran expansion into space, these flying mountains have become a vital part of the history of the Solomani.

Although the economic value of the asteroids is considerable, they can be said to have made no greater contribution than when they allowed researchers in 2087 to discover the jump drive. Only here, in an effectively weightless environment far from the reach of major gravity wells, was it possible for scientists to refine and perfect the techniques which opened up the stars to the Solomani and elevated them to the status of a major race.

Currently, there is a colony of roughly 2,350,000 persons living on and around the various asteroids. The vast majority of these inhabitants are scattered among a dozen different population centers on as many asteroids, but a small fraction (5% or so) are independent miners who spend much of their time prospecting on their own in small craft.

One of the most interesting of these colonies exists on the asteroid Amor. Here, a small community of genetically enhanced Dolphins make their home in the shell of this hollowed-out planetoid. Primarily interested in the advancement of the arts, they welcome any outsiders who wish to join them and become a part of their clan.

JUPITER

(Sol Eta/Large Gas Giant)

At 140,000 kilometers in equatorial diameter, Jupiter is the largest planet in the Terra system. Jupiter's mean orbital distance is nearly 775 million kilometers and it requires nearly 12 years to complete one revolution about the sun. It rotates very rapidly about its poles, completing one rotation every 9 hours and 50 minutes. This spin has caused the planet to become so greatly flattened that its polar diameter is nearly 8,000 kilometers less than the equatorial diameter given above.

Like many jovian worlds, Jupiter is basicaly a whirling ball of liquid hydrogen with an earth-sized iron core. Its atmosphere is made up largely of helium, methane, and ammonia, with clouds of ammonia ice crystals.

Jupiter has been found to possess many moons, though most are nothing more than captured asteroids from the system's planetoid belt. Two of the larger moons, Ganymede and Callisto, have been developed and currently host manned installations.

The Kennsington Armed Forces Testing Center on Ganymede was used as a proving ground for new weapons technology prior the Imperial occupation of the Terra system and the close of the Solomani Rim War. Currently, it houses a squadron of system defense boats and a small contingent of Marines. On the average, Ganymede has a resident population of some 30,000 persons and is closed to outside travellers.

Prior to the defeat of the Solomani, much of their military research was conducted on Callisto at the Byahnn Research Facility. Working in conjunction with the Kennsington Center on Ganymede, this station helped to create new weapons systems for the battle against the Imperium. Since the fall of the system, the facility has been employed for many other purposes. Currently, work at the Byahnn system is geared toward the understanding of jovian meteorology and serves as a base station for deep probes into the stormy atmosphere of this impressive world.

SATURN

(Sol Theta/Large Gas Giant)

Saturn, which orbits Sol at a distance of just over 1.4 billion kilometers, has one of the most beautiful ring systems in known space. Although there are others in the Imperium which may be its equal, it is certainly without parallel in the Solomani Rim. Nearly all craft which are outfitted for frontier refueling do so at Saturn to take in the spectacular view which nature has provided.

Saturn requires nearly 29.5 standard years to complete

one revolution about the system's primary and rotates on its axis every 16 hours and 39 minutes. With an equatorial diameter of 120,160 kilometers and a polar diameter of 107,480 kilometers, Saturn is the second largest planet in the Terra system. Both Saturn and Jupiter are still settling gravitationally from their accretion four billion years ago, causing them to produce heat due to the continual contraction of their mass. Saturn radiates over three times as much heat as it receives from the sun itself. In addition to its ring systems, Saturn has a small armada of moons. Of these, only three (Enceladus, Rhea, and Titan) currently host manned installations of some type.

Enceladus is currently home to the Huygens Astrophysical Outpost. Research at the HAO is classified, although there is some evidence to support the belief that the work done here is aimed at producing a breakthrough in antimatter containment. Access to the station is strictly controlled.

Like most of Saturn's larger inner satellites, Enceladus is composed largely of water ice. Although all of these moons have fairly heavily cratered surfaces, Enceladus seems to be less scarred than its sisters. Research has shown that this is due to recent (in geological terms) tectonic activity.

Rhea, the most heavily populated of Saturn's twoscore moons, controls all of the spacecraft traffic in Terra's outer system (beyond the planetoid belts). In addition, it hosts a Scout base, established by the Solomani during the First Interstellar War. With the heavy traffic which passes through this region, both from the Scout base and of those refueling in Saturn's atmosphere, the staff of the Cassini Spaceport is kept busy at all times.

The surface of Rhea is bright and covered with wispy streaks which stem from the moon's tectonic activity that constantly forces fresh ice to the surface. It is considered to be the outermost of Saturn's inner moons.

Titan, which orbits between the inner and outer satellite groups, has a diameter of 5,150 kilometers (making it larger than the planet Mercury). Titan's atmosphere is composed of nitrogen with traces of methane, ethane, hydrogen cyanide, and similar vapors. The surface temperature averages -182° C, and methane or ethane rain, snow, and ice are not uncommon. Titan is composed primarily of rock and water ice in fairly equal proportions.

A small archaeological station has been established here (with an average population of only 25 persons) which is looking into possible evidence of Ancient activity on Titan. To date, they have found none, but efforts persist based on information obtained amid the ruins on Venus.

URANUS

(Sol Iota/Small Gas Giant)

The seventh planet from the sun, Uranus has an equatorial diameter of 51,200 kilometers and an orbital radius of roughly 2.9 billion kilometers. Uranus has an axial tilt of 97°, causing it to orbit on its side relative to the rest of the system. Like most other jovian worlds, Uranus has a ring system and many moons.

Beneath the stormy clouds of Uranus's upper atmosphere lies an ocean of superheated water which reaches temperatures of several thousand degrees. Pressure from the thick atmosphere prevents it from boiling away, while its own thermal energy keeps it from solidifying. This unusual structure has prompted the founding of a scientific station on Titania which sends both manned and unmanned probes into the fray in an attempt to study its behavior. Current theory, based on their research, holds that Uranus must have been formed by a coalescence of comets.

In addition to the station on Titania, a small outpost exists on the tiny moon Umbriel. With a population of less than three dozen, this facility is also employed in the study of Uranus. Efforts here, however, focus on the understanding of Uranus's unusual magnetic fields. Shifted fully 60° out of sync from the planet's poles, there is strong evidence to support the belief that the north and south magnetic poles are undergoing a shift in position, possibly caused by the unusual climate described above.

NEPTUNE

(Sol Kappa/Small Gas Giant)

At a distance of roughly 4.5 billion kilometers from Sol, Neptune is the fourth largest world in the Terra system, with a diameter of nearly 50,000 kilometers. It orbits Sol once every 165 years and has a rotation period of roughly 16 hours. The atmosphere of Neptune is very much like that of similarly positioned jovians in other systems, being composed primarily of methane and hydrogen.

Neptune has a handful of moons, the most important of which (and the only one currently inhabited) is Triton. Triton is the size of Luna and has a very frail trace atmosphere. Although once an important mining facility, the falling production of the Leverrier Complex has caused the Imperial Governor on Terra to order it slowly phased out. Currently, a population of between 75 and 100 technicians are employed at the facility to shut down all operations there. The last phase of the shutdown is scheduled to be completed within five years.

PLUTO

(Sol Lambda/F10046C-F)

Named for the lord of the underworld in an ancient Terran mythology, Pluto is indeed a world fit for the dead. Although its mean distance from the star Sol is 5.9 billion kilometers, Pluto has a highly eccentric orbit which brings it inside of the orbit of Neptune (to a position only 4.4 billion kilometers out) and then sweeps it back again to reach a maximum distance of 7.4 billion kilometers. No possibility of collision with Neptune exists, however, as Pluto's orbit is also tilted well outside of the ecliptic, so that it never actually crosses Neptune's path. Pluto has an orbital period of 247.7 standard years and a rotation period of just over 6 standard days. Pluto is composed almost totally of frozen gases and has a very low density.

An Imperial Navy base and research lab with a combined population of nearly 90,000 stands in orbit above this forsaken world. Activity at this base is heavy and the space about Pluto is restricted out to one astronomical unit. No travel is allowed within that region for any reason at all.

Imperial officials will not give any explanation for such unusual restrictions, and the theories proposed to account for them involve everything from secret stockpiles of Ancient technologies to major breakthroughs in a variety of scientific fields.•

GRAND SURVEY WORLD PROFILE

Date of Preparation: 155/1105
World Name: Terra
Location: Solomani Rim 1827
UPP: A867A69-F

Physical Data:
Diameter: 12,742 km
Density: 1.0 standard
Mass: 1.0 standard
Mean Surface Gravity: 1.0 g
Rotation Period: 23 hrs, 56 min, 4 sec
Orbital Period: 365.25 days
Seasons: Spring, summer, winter, fall
Axial Tilt: 23° 27'
Orbital Eccentricity: 0.016
Satellites: Luna
Surface Atm Pressure: 1.0 standard atm
Atm Composition: std nitrogen-oxygen mix
Atm Terraforming: Yes
Hyd Percentage: 71%
Hyd Composition: Water
Hyd Terraforming: Yes

Temperature:
Base Mean Surf Temp: 15°C
Axial Tilt Modifiers: +14.1°C, -23.3°C
Rotation Modifiers: +6.0°C, 12.0°C
Latitude Modifiers: 7.0°C per hex row
Orbital Eccentricity: ±0.5°C
Weather Control: Yes
Grnhse Efft Terrafrmg: Yes
Other Modifiers: None

Mapping Data:
Nbr Tectonic Plates: 10
Native Life: Yes
Terrain Terraforming: Yes
Major Continents: 3
Minor Continents: 3 (12 major islands, 14 archipelagoes)
Major Oceans: world
Minor Oceans: world

Seismic Data:
Stress Factor: 3
Notable Volcanoes: 1

Resources:
Natural Resources: Agricultural, Ores, Radioactives, Gems and Crystals, Petrochemicals
Processed Resources: Agricultural, Alloys, Agroproducts
Manufactured Products: Mechanical Parts, Heavy Equipment, Electronics

Population & Ports:
World Population: 42,530,000,000
Primary Cities: Los Angeles; 12.2 bil; A
Medina al-Kitaab/AECO; 4.3 bil; A
LaGrange;; 2.2 bil; A
Secondary Cities: 30 cities circa 500 mil; C
Tertiary Cities: 750 cities circa 50 mil; G
Orbital Cities: Los Angeles Orbital; 60 mil; A
AECO Orbital; 28 mil; A

GRAND CENSUS CULTURAL PROFILE

World Name: Terra
Location: Solomani Rim 1827
UPP: A867A69-F

Cultural Profile:
Progressiveness-Att: Radical
Progressiveness-Act: Enterprising

Aggressiveness-Att: Competitive
Aggressiveness-Act: Neutral

Global Extent: Harmonious
Interstellar Extent: Friendly

Technology Profile:
High Common: 15
Low Common: 14
Energy: 15
Computers/Robotics: 15
Communications: 16
Medical: 16
Environment: 16
Land Transport: 14
Water Transport: 14
Air Transport: 14
Space Transport: 15
Personal Weapons: 15
Heavy Weapons: 15

Government Division of Authority:
Legislative: Elite Council (IMGT)
Executive: Elite Council (IMGT)

Judical: Elite Council (IMGT)

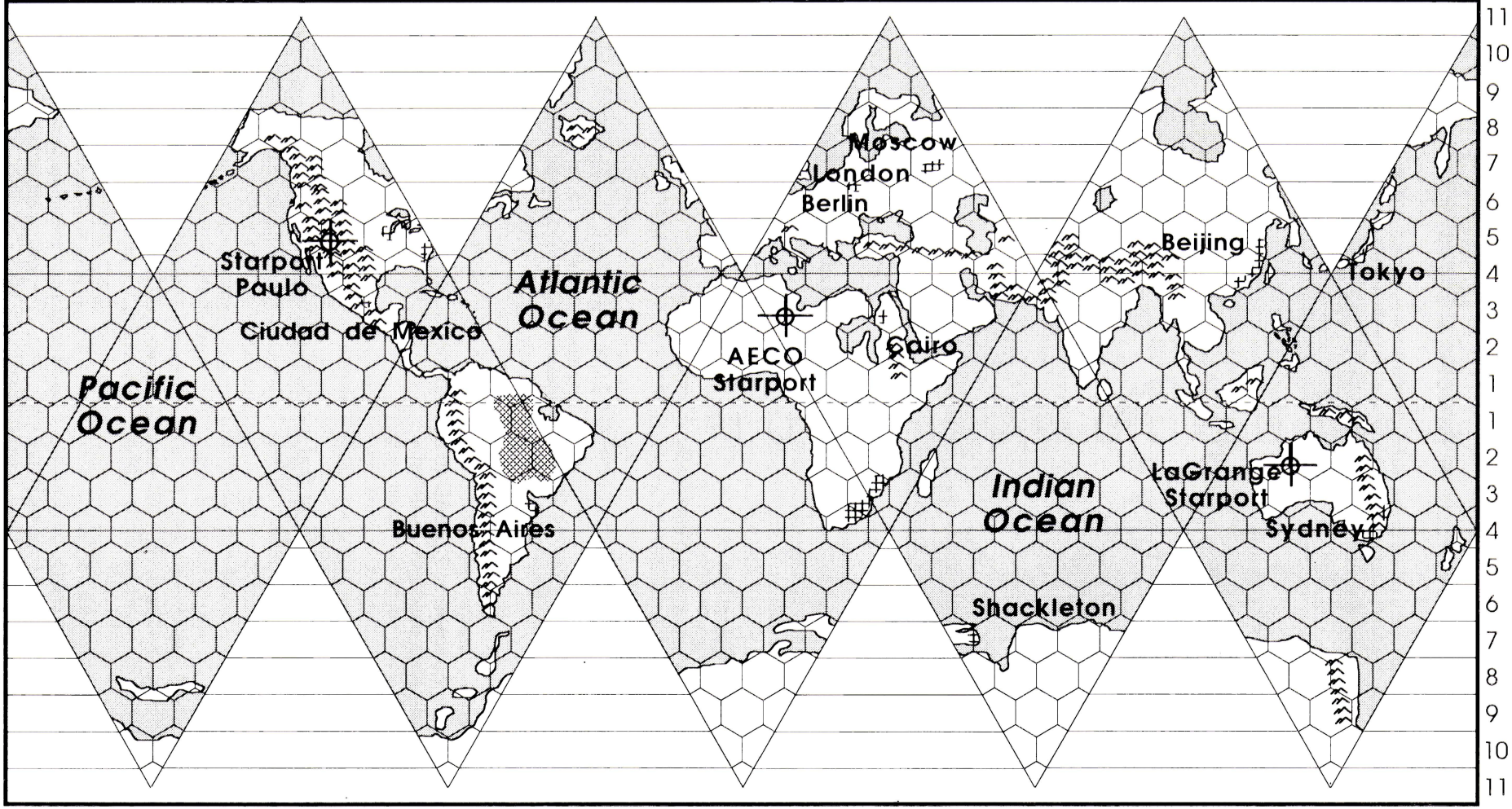
Law Level:
Uniformity of Law: Undivided
Overall: 9
Weapons: 9
Trade: 6
Criminal Law: 8
Civil Law: B
Personal Freedom: 9

Local Customs:
Unusual clothes for high social class
Fixed times for visiting others

WORLD MAP GRID

This geodesic map grid divides the spherical surface of any globe into twenty triangles, each of which is further divided into hexagons. Note terrain identities and other planetographic features of the world in these hexagons.
Total number of map hexes per triangle: 25. Total number of map hexes: 500.

1. Date of Preparation	2. World Name *(and UPP)*	3. Hexagon Scale in Kilometers (circumference divided by 35)	4. Subsector and Sector Location of World
153-1113	Terra A867A69-F	1110 kilometers per hex	Solomani Rim/Sol



IS Form 21

World Map Grid (Large)

Map Terrain Key

- Settled
- Ocean
- Mountains
- Major Metropolis (circa 500 million)
- Desert
- Jungle

SURVEY SWEEPSTAKES — Travellers' Digest 13

Let us know what you think! Photocopy the survey below, fill it out for the articles you read, and send it to: TD13 Survey Sweepstakes, 8979 Mandan Ct., Boise, ID 83709. Three names will be chosen at random to win an autographed copy of 101 Vehicles. Deadline for entries is August 15, 1988.

	Hated It		Loved It
Adventure: Terra Incognita	☐	☐	☐
System Survey: Terra	☐	☐	☐
Dolphins	☐	☐	☐
Adventure: The Trouble With Kids	☐	☐	☐
Rebel Reporter	☐	☐	☐
Gaming Digest	☐	☐	☐
Medical Digest	☐	☐	☐
Solomani Rim Library Data	☐	☐	☐
Traveller Q&A	☐	☐	☐
Terran Occupation Force	☐	☐	☐
2300AD: Pentapod Starships	☐	☐	☐

1. Did you play this issue's feature adventure using our characters or did you use other characters?

2. Would you like our coverage of 2300AD to be expanded, left the same, or reduced?

3. What subjects do you want us to cover that we don't currently cover?

In Defense of Emperor Dulinor

THE REBEL REPORTER
—by Gary L. Thomas

In this, the first issue of a regular column on the Rebellion, we reprint a pro-Dulinor tract, "In Defense of Emperor Dulinor", extant in Ilelish and Core Sectors. While this publication was not officially sanctioned by Dulinor's faction, it is typical of the types of arguments made by his supporters.

Many otherwise patriotic citizens of the True Imperium are confused by the anti-Dulinor propaganda spewing forth from the usurpers at Capital. Because of the weight accorded these scurrilous opinions by many of the Imperial media services, it can be difficult to see through the smoke to the substance beneath. Let us examine several of these claims in some detail, looking carefully at both sides of the question. Only by being honest with ourselves can we be loyal to the True Imperium.

THE CASE AGAINST STREPHON

Strephon Alkhalikoi's long reign was a disaster. His inept handling of the continued growth of the Imperium is obvious, most particularly by looking at the rapidity with which the Imperium deteriorated as soon as he was removed from the throne. The Imperium is a complex tapestry, delicately woven together from countless diverse strands. Strephon allowed these to unravel while he played with other projects.

His refusal to abdicate when confronted with these facts was haughty, and not in the best interests of the Imperium. He alone had it within his power to allow political control to pass peacefully from himself to a competent successor, and he alone is to blame for his refusal. It is unfortunate that violent means were necessary to accomplish the True Imperium's salvation, but Strephon himself must be seen as the true instigator of bloodshed in this regard.

THE CASE AGAINST LUCAN AND MARGARET

As for Strephon's family, subsequent events have painted their true characters with ugly colors. The usurper Lucan was so desperate for ill-gained power that he murdered his own brother in cold blood. Lucan then sent his thugs to dissolve the Moot, thus preventing any settlement by law of this situation, further throwing the Imperium into a state of chaos. His mishandling of the Imperial Naval fleets further weakens the True Imperium by pitting its defenses against itself and causing the deaths of countless innocents in a futile internecine struggle.

Margaret, another false claimant, shows her disregard for the Imperium's most important traditions by encouraging a thriving slave trade within the region she holds. Little more need be said about her.

THE CASE FOR AND AGAINST THE MOOT

The Moot, the deliberative body of nobles which for more than a thousand years has given advice to emperors and empresses, has been dissolved by Lucan, who fears that their esteemed opinions might rightfully turn against his unjust cause. If Lucan were truly a friend of loyal Imperial citizens, he would hasten to correct this injustice with all speed. "But the Imperium has been thrown into a state of chaos," he warns. Certainly it has, by his gory claim to the iridium throne. The current state of the Imperium is all the more reason for Lucan to provide it as much help as he can, by allowing its wisest leaders to act.

The Moot, for its part, is certainly not blameless in this affair. Is the body toothless, that it cannot resist a little boy's tantrums? We expect to see nobler behavior from these worthies in the future.

THE CASE AGAINST "THE REAL STREPHON"

What kind of nincompoop would say he was the throne's true claimant, simultaneously admitting that he ignored its

responsibilities and allowed the most important decisions of state to be left to an ignorant imposter while he was off enjoying himself? Further, what kind of nincompoops would support such a claimant in his rash assertions?

THE CASE FOR CULTURAL TOLERANCE

The Imperium is a diverse state, holding together thousands of worlds and trillions of citizens. Lucan and his cohorts have stooped to the lowest breed of prejudice by trying to take advantage of this cultural diversity. Fortunately, few loyal citizens are apt to fall for this nonsense.

For example, much has been made of Emperor Dulinor's clothing. In Solomani culture, black has often been associated with evildoers. The traditions of the Antares League similarly consider black clothing to be a symbol of mental instability or sexual immorality. To associate either of these practices with Emperor Dulinor is simply scandalous, and demonstrates the depths to which his opponents must stoop in a vain effort to discredit his honorable claim.

In fact, Emperor Dulinor dresses in black for the same reason that millions of his countrymen do — simply because they are not practitioners of Virasa, the official religion on the world of Dlan.

THE CASE AGAINST RACISM

Another false charge leveled against Emperor Dulinor is that of racism, stemming from the unfortunate shooting of the Aslan Yerlyaruiwo ambassador in the throne room. Lucan in particular has made much of this accident.

In fact, the emperor's supporters include among them millions of loyal Aslan, including thousands of fleet personnel willing to lay their lives on the line for the just cause of Dulinor and the True Imperium. The misfire on Capital is an accident for which Emperor Dulinor would willingly apologize, if he were given the chance to do so.•

BETWEEN WORLDS

We Are Pulling Together Again!

Due to computer problems, subscription entries were lost. If previous subscribers are still interested in continuing their current subscription, please send a copy of your cancelled check, or something denoting their subscription to:

Magnus M. Abel
3914 Angeles
Tampa, FL 33629

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Here's your chance to fill out your collection with some high-quality Traveller products.
Send us a SASE for our complete list to:

Digest Group Publications
8979 Mandan Ct.
Boise, ID 83709

STRIKER AGAIN!

Once upon a time the original edition of ***Striker*** was discontinued and it went out of print. Recently, a small quantity of ***Striker*** game components was discovered in the GDW warehouse (misshelved behind the bulk corrugated section). Missing, however, were the ***Striker*** boxes.

We have produced a cheap identification wrapper, and boxed the components in a similar box from a different game. Inside, however, is the complete ***Striker.***

There's only a limited quantity available. While they last, we have them for $10 each.

Write: Games, P.O. Box 193,
Normal, Illinois 61761

Solomani Rim Sector

LIBRARY DATA OF THE SECTOR

—by Nancy Parker and Robert Parker

Ultima	Suleiman	Concord	Harlequin
Alderamin	Esperance	Vega	Banasdan
Albadawi	Dingir	Sol	Arcturus
Jardin	Capella	Gemini	Kukulcan

Solomani Rim: Subsector Key

Boskone/Esperance (1214 E00016A-E): The Boskone belts are own-ed by Ludmilla (1216 A45689D-E), but the belt's appeal is not its mineral value for it has none. Its planetoids are all carbonaceous and ice fragments — useless for mining.

But, ome of the fragments are big enough to accommodate major habitat construction, and it is reported that Ludmilla claimed the system for "scientific research". Just what they are researching is not public knowledge.

Referee: In fact, if Imperial officials knew what was going on here, they might try to shut it down. Ludmillan scientists are trying to alter humans for life in near-vacuum, zero-g conditions, working with ova and sperm collected on Ludmilla under quite different pretenses. Some of their failures have been quite bad, even horrifying. Because some of the alterations are done with viruses, isolation of the lab was a priority, but putting it in another star system is pushing the legal limits of Imperial tolerance for such experimentation.

Hamilcar/Gemini (1738 A26A9AA-E): Subsector Capital. Hamilcar was settled early in the Rule of Man by a cultural group from Terran Polynesia. Terran dolphins were also transplanted here before they were made sentient.

Now that sentient dolphins also exist, populations of both types are found on Hamilcar, coexisting with relative ease. Two million of the world's two billion inhabitants are sentient dolphins. Most of the humans live in ship-cities and consequently share some of the dolphin attitude toward ownership of property.

In an astonishing political coup, the dolphins have put one of their own into power on Hamilcar. The dolphin, Keekiiteep, is widely acclaimed as a wise ruler, even on other worlds of the subsector. Of course, politics is not a typical dolphin interest, but getting sophonts to cooperate and live harmoniously is a worthy goal, even to a dolphin. The heritage of the easy-going Polynesian culture makes the human population more receptive to Keekiiteep's guidance.

The high law level reflects primarily the taboo on violence; personal freedom is very little restricted.

Ishimshulgi/Sol (2021 E200478-7): This world used to have a thin atmosphere and a few oceans, before the Terran corporation GenAssist attempted improvements.

Several centuries ago, the corporation attempted to "encourage" a native lifeform which fixed nitrogen into the soil for use by the local plants. The lifeform was not widespread or prolific, and corporate personnel were hoping to encourage it in order to expand the local agricultural regions. GenAssist genetically altered the bacteria for prolificity. The alterations worked, and in a few short years, the entire soil surface was fixing nitrogen at a prodigious rate — an alarming rate. GenAssist tried desperately to create an "antidote" lifeform, but to no avail. In a bizzare twist of events, one of the "antidote" attempts mutated into a strain capable of storing oxygen in the soil. Within a century, the entire atmosphere of Ishimshulgi was locked in the world's crust.

The Ishimshulgians are understandably embittered at being driven into sealed habitats on what used to be a habitable planet. Many left the world when the debacle became obvious; the remainder filed a claim against Genassist that took the corporation years to pay off. The payments for damages have been used to "bubble-terraform" several locations on the planet's surface.

Noricum/Banasdan (2918 A38A7CC-F): Amber Zone. Noricum's native life evolved directly from sea to air forms by way of many varieties of flying fish and rays. Such an evolutionary pattern was aided by the world's low gravity and dense atmosphere. Both environments teem with life; Noricum harbors millions of aerial species.

Although little land appears above water on Noricum, there are literal forests of sea plants, counterweighted to stand upright, that extend several meters into the air out of the water. Where these plants have intertwined their roots, they may form large mats up to several kilometers across. In the protected waters among their stalks, another ecology flourishes, including the only crawling forms on Noricum.

Some 40 million people live here, mostly in grav cities. They are ruled by the Alkalif, a group whose members are selected in infancy and trained for their role until age 30. The populace is convinced that this produces the best possible leaders, possibly because charisma is one of the traits trained into the Alkalif.

The local culture places little value on privacy. Visitors should use discretion, since their words can be repeated to the highest officials if they criticize anything.

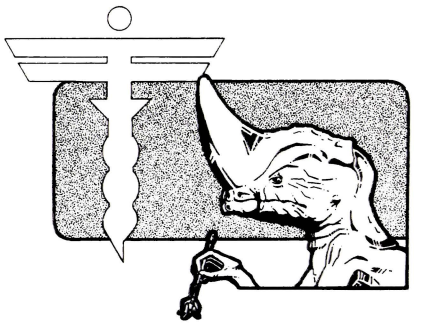
Weipu/Alderamin (0719 X543000-0): Red Zone. Weipu is a pretty planet, possessing vast forested regions with scattered lakes and small seas. History records how many spacefarers found Weipu to look inviting by comparison with its near neighbors: desert Ippurash, chilly, methane-rich Thars, and the Stralsund asteroids.

But Weipu is void of any human colonization or even robot intrusion — it instead is ruled by a unique metal-consuming bacteria evolved in its mineral-laden hot springs.

The first humans to land on Weipu were stranded by the inexplicable breakdown of their ship and most machinery. They eventually realized that something organic was the cause, but had little equipment left with which to investigate. A second wave of colonists landed and left in short order, bearing the survivors of the first wave with them. The colonists from both parties were quarantined on an asteroid at Stralsund and the ships were dismantled.

The bacteria, while not directly pathogenic, can live in the human intestine. All colonists living on the Stralsund asteroid eventually died of iron, copper, and zinc deficiencies.

The planet was interdicted. The bacteria is a widespread and essential link in the planetary ecology. Eradicating it would wipe out all native lifeforms on the world.•



Replacement Body Parts: Prosthetics, Bionics, Regrowth and Cloning

MEDICAL DIGEST, Part 2

—by Mike Jackson and Joe D. Fugate Sr.

Editors' Note: Portions of this article first appeared in the ***Traveller*** *fanzine* Third Imperium, *published by Mike Jackson. Part 1 of this article appeared in the last issue.*

In Issue 12 we discussed prosthetics, bionics, regrowth, and cloning as medical techniques for replacing lost body parts. As promised, in this issue we present specific game rules for incorporating prosthetics and bionics into your **Traveller** campaigns. Next issue, we will provide rules for regrowth and cloning.

THE NEW RULES

These rules are presented using the flowchart method introduced in the **MegaTraveller** *Referee's Manual,* providing a convenient and detailed checklist of steps to follow. All the tables and charts you need are right at your fingertips, with no need to rummage through the book looking for "the tables."

The **MegaTraveller** *Players' Manual* presents a set of tasks and guidelines for handling character wounding and medical treatment on pages 75 and 82. By necessity, the *Players' Manual* rules are brief, and aimed specifically at the immediate assessment of combat-oriented damage. The rules in this article are more detailed and more comprehensive than the rules presented in the *Players' Manual.*

There are two basic reasons why any character may need medical treatment: sickness or accidental injury. The rules in this article deal with accidental injury — a future article will present detailed rules on handling sickness.

Serious accidental injuries often result in the loss of one or more body parts. As technology advances, the effects of such a catastrophic loss become less and less permanent.

DEFINITION OF COMMON TERMS

The following definitions and concepts are used on these flowcharts when referring to replacement body parts.

Prosthetics: Prosthetics are mass-produced, functioning body part replacements, surgically installed by a medical professional.

Available as early as tech level 9, high-tech surgeons consider prosthetics an essential item in their repertoire of body repair methods. Prosthetics include both limbs and artificial organs. Prior to tech level 12, external prosthetics look less than convincing when viewed close up. By tech level 12, they are virtually indistinguishable from the real thing.

Prosthetics are the most economical type of replacement body parts.

Bionics: Bionics are individually custom-designed to enhance the function of the original body part.

The surgeon usually insists the patient give a good reason as to why a bionic part is called for. The surgeon must use both medical and robotics skill to design and install the bionic part. The patient, for his part, must make not only a physical but also a psychological adjustment: one part of his body is now "better" than the rest, and some patients suffer a crisis of self-esteem because of this subconscious comparison.

Bionics tend to look very artificial prior to tech level 12. By tech level 12 it becomes more difficult to tell a bionic replacement from a prosthetic one. At all tech levels, bionics are generally bulkier, noisier and more unwieldy than equivalent prosthetics.

Bionics are the most expensive type of replacement body parts.

Regrowth: Regrowth involves stimulating the body to regrow its missing part.

By tech level 9, missing limbs can be regrown, and by tech level 11, damaged non-vital organs can be regrown in place. The new biological part is essentially identical to the original in function. Limbs, once they have been retrained, are equivalent to the original in ability.

With regrowth the subject must wait for the biological replacement part to grow. The big advantage of regrowth, of course, is that the new body part comes automatically (and correctly) attached. Growth quickening reduces the time it takes to regrow the body part, making regrowth more convenient and more practical at the higher tech levels.

Regrowth is more expensive (and time-consuming) than prosthetics, but is generally cheaper than cloning or bionics.

Cloning: Cloning involves taking one or more cells and growing a replacement body part for the donor in an artificial womb.

By tech level 13, new body parts of any kind can be selectively cloned from the DNA of any body cell. Cloning is more convenient than regrowth since the recipient is free to do whatever he wants during the growing period. The down side of cloning comes when the new part must be attached: complicated and expensive surgery is required. Growth quickening techniques aid the cloning process by drastically reducing the time the body part must spend growing "in vitro" inside the special artificial womb; this reduction in time greatly reduces the cost of the new part.

Cloning costs about the same as regrowth during the growing period; surgical attachment of the new biological body part, however, is more expensive than any of the other options.•

MEDICAL AID AND TREATMENT

1 Ways a Character Can Become Sick or Injured

A character can become injured in one of three ways:

- **Failing a survival roll during character generation**
  Proceed to step 2a.
- **Suffering a mishap during a task attempt**
  Proceed to step 2b.
- **Taking a hit during combat**
  Proceed to step 2c.

2a Failing a Survival Roll During Character Generation

If the character failed his survival roll (including the DMs) by 2 or more, exceptional failure has occurred, and he should roll 3D on the mishap table; otherwise, he should roll 2D on the mishap table. Then proceed to step 2b.

2b Suffering a Mishap During a Task Attempt

If the referee so decides, a mishap can result in bodily harm to the character. In that case, use the following table as a guide for determining wounds from a mishap:

Mishap Level	*Wounds*
Superficial	1D
Minor	2D
Major	3D
Destroyed	4D

Proceed to step 3.

2c Taking a Hit During Combat

To assess the damage done to a character, count up the number of damage points he received during combat. For each damage point received, roll 1D and apply the result as wound damage. See step 3 for guidelines in applying wound damage.

3 Applying Wound Damage

For each 1D rolled, apply its result entirely to *one* characteristic.

All characteristics are eligible for receiving damage, although you should prefer the three physical stats Str, Dex, and End; Int, Edu, and Soc wounding is more rare.

The referee is responsible for determining which characteristic receives the wound damage.

Int or Edu: If Int or Edu are damaged, and if the total of all the skill levels exceeds the new Int+Edu after medical treatment is completed, the healed character will be required to drop enough skills to comply with his new limit. On rare occasions, medical treatment can restore some lost levels of Int or Edu.

Soc: Social standing wounding is the most rare, but when it does occur, it typically means a wound to highly visible areas such as the face or hands has taken place.

The referee can use Soc damage as a good buffer to "absorb" a few excess damage points that may otherwise kill a player character.

Soc damage points should be permanent (relatively speaking, of course. A character can generally correct the problem with expensive plastic surgery treatment).

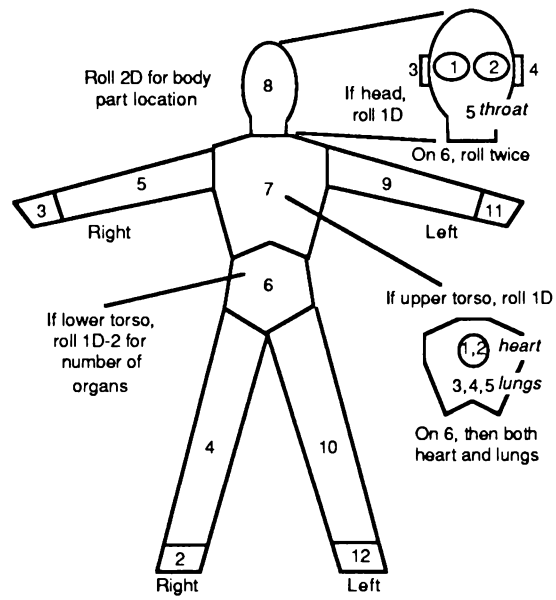
For example, a loss of 6 to Soc means that the highest attainable Soc becomes 9 and the character can never become a noble.

4 Determine Which Body Part Was Affected

Using the table below, re-assess the final damage level.

Observed value of characteristics	*Damage Level*
None at zero (flesh wound)	Superficial
1 at zero (moderate wound)	Minor
2 at zero (serious wound)	Major
3 at zero (death)	Destroyed

Roll 2D on the following chart to determine which body part was affected. Roll twice for major damage, and roll three times for destroyed damage.



Notes: An arm that needs replaced includes the associated hand as well; a leg that needs replaced also includes the associated foot.

Even though a vital organ such as the heart or lungs may need to be replaced, the character is still alive. The indicated vital organ has been permanently damaged and may cease to function at any time (referee's discretion).

The reason the brain is not included in the possible head locations is simple: these rules assume that whenever the brain has been damaged beyond repair, the character has died.

5 Diagnose the Injury and Apply Initial Treatment

The injured character must be given initial diagnosis/treatment according to the following table:

Wound Level	*Must diagnose in next...*	*If not...*	*Comments*
Superficial	2D hours	2D mishap (infection)	Don't reroll if not treated
Minor	1D x 10 minutes	2D mishap (trauma)*	Unconscious for 3D minutes
Major	2D minutes	3D mishap (blood loss)*	Unconscious for 1D hours
Destroyed	1D minutes	death†	

*If successful initial diagnosis/treatment is not received in the required time and the character is still alive, reroll for a mishap every hour until at least initial treatment is received, or the character dies.

†If a TL12+ medical kit is used and the initial diagnosis/treatment is successful, the character may be kept barely alive long enough to be put in TL9+ medical facilities (or low berth) if this is done within 1D days. If the character is in low berth, or he is in medical facilities of at least TL9, his characteristics remain at zero, and he is vulnerable to any influence that interferes with his life support (for example, a severe jolt, depletion of supplies, and so on). As long as the character has constant medical attention, and his life support is not threatened, he may be sustained in this condition for up to 2D months.

To perform initial diagnosis/treatment for an injury:

Routine, Medical, Int, 2 min (uncertain)

Referee: This task assumes external injuries (damage to a limb or the head). If the injuries are internal (upper or lower torso organs), double the time increment. If **Some Truth,** treatment may be made, but may be less than optimum: secretly roll 2D on the Mishap table — on a major mishap, apply 1D points of additional damage.

If a tech 7-11 medical kit is used, reduce the time increment on this task to 30 sec for external injuries and 1 min for internal injuries.

If a tech 12+ medical kit is used, reduce the time increment on this task to *Instant.*

If this task is performed in the field (first aid), increase the difficulty one level.

For superficial wounds, final treatment is required only when an infection mishap occurs.

6 Locate a Suitable Facility for Final Treatment

If the injury occurred during character generation, use the highest tech level possible in the character's homeworld tech code as the facility tech level, and proceed directly to step 7, Determine Whether Replacement Body Parts Needed.

Otherwise, locate a medical facility of the desired tech level for final treatment. This step can be as detailed as desired: the referee may define a single task, a series of tasks, or may play this step out as an entire side adventure.

7 Determine Whether Replacement Body Parts Needed

Once a suitable facility has been located, determine if any replacement body parts are needed by consulting the following table:

Replacement Wound Level	*Body Parts Needed?*
Superficial	No
Minor	No
Major	Yes
Destroyed	Yes

When an external body part (limb or sensory organ) needs replaced, a character has several choices: simple amputation, a transplant, a prosthetic, regrowth, cloning, or a bionic. Go to the appropriate chart; when done there, come back to step 9, Heealing.

When an internal body part needs replaced, the choices are: life support, a transplant, a prosthetic, regrowth, cloning, or a bionic. Go to the appropriate chart; when done there, come back to step 9, Healing.

Notes:

- If in the Army or Marines, a prosthetic must be chosen (except among commandos).
- If in the Navy or Merchants, a prosthetic may not be chosen.

8 Perform Final Treatment

Perform the final treatment using the following task:

To perform final treatment:

[treatment difficulty], Medical, Int, 10 min

Referee: The difficulty level of this task depends upon the amount of damage the patient has sustained; consult the table below, then continue on to the next page.

Treatment Wound Lvl	*Difficulty*	*Surgery Req?*	*Inactivity Period*	*Healing Rate After Inactivity Period*
Superficial	Simple	No	None	+1 per day for each char
Minor	Routine	Maybe*	2D days	+1 per day for single char
Major	Difficult	Yes	1D x 10 days	+1 per day for single char
Destroyed	Formidable	Yes†	Until healed†	+1 per month for single char†

*Surgery is required for all minor gunshot, fragment, blade, and puncture wounds. It is not needed for minor laser and energy weapon burns.

†To recover, a "dead" character must receive final treatment in a medical facility of at least TL13. If successful treatment is not received within 2D months (as indicated in step 5, above), the character dies. A special DM of +1 per tech level over 13 is allowed on the final treatment task. If the treatment is successful, the character is comatose, with all level 0 characteristics increased to 1.

Step 8, continued...

On damage which requires surgery, a character with at least medical-3 and Dex 8+ is required, otherwise, increase the task difficulty by one level.

The task duration determines how much time that the attending physician must spend on treatment; a period of inactivity/healing is usually required for recovery.

If a superficial or minor mishap occurs, apply additional damage to the character.

If a major or destroyed mishap occurs, permanent damage may be taken by the character: reroll 2D on the mishap table to determine the amount of permanent damage taken by the character. The referee must determine how the damage is to be applied: all characteristics are eligible for receiving damage.

The task duration indicates the amount of time the physician must spend on the actual surgical procedure. A period of therapy and healing is required after the initial treatment.

9 Healing

The healing varies depending on the level of wounding.

Superficial: Normal activity can be resumed after treatment.

Healing Rate: +1 per day for each injured characteristic.

Cost: Roll 3D for the cost in credits of miscellaneous medical items.

Minor: The injured character must spend 2D days of total inactivity. The character may be moved by others, but must remain in bed. During the inactive period, all characteristics will be halfway between their wounded level and the original, at the end of the period, final healing will begin to take place.

Healing Rate: +1 per day for 1 characteristic (player's choice).

Cost: Non-surgical, Cr10 x 2D; surgical, Cr500 x 1D. If inactivity is in a hospital, Cr500 per day for 1D days, Cr100 per day thereafter. Field care is Cr50 per day.

Major: The injured character must spend 1D x 10 days of total inactivity. The character may not be moved by others, and must remain in bed. During the inactive period, all characteristics will be halfway between their wounded level and the original, at the end of the period, final healing will take place.

Healing Rate: +1 per day for 1 characteristic (player's choice).

Cost: Surgery, Cr1,000 x 1D. If inactivity is in a hospital, 500Cr per day for 1D days, 100Cr per day thereafter. Field care is 50Cr per day.

Destroyed: When any one characteristic reaches 4 (or its original level, if less), the character regains consciousness. When two of the three characteristics reach their original level, no more healing occurs. The character must remain inactive until healing ends. The character may be treated on a tech level 13+ world and then be removed to a lower tech world for healing. The character may resume limited non-physical activity as soon as all characteristics have reached 4 (or full level if less).

Healing Rate: The player must decide which characteristic to restore. Roll 2D for 9+, with a DM of +1 per facility tech level over 12. If successful, add 1 to the characteristic for the month.

Cost: Low berth costs, Cr1,000 per week. Treatment, Cr250,000. Healing in a hospital (required), Cr150,000 per month.

AMPUTATION/REMOVAL (TL 1+)

1a Removing a Limb

If the damaged body part is a limb, and the facility tech level is less than 9, an amputation is usually the treatment. Surgery is required to amputate a damaged limb.

To amputate a limb:
Difficult, Medical, Edu, 10 min

Referee: This task requires a surgeon (Dex 8+) for treatment, otherwise increase this task difficulty by one level. If the facility tech level is less than 6, this task becomes hazardous.

If a superficial or minor mishap occurs, simply apply additional damage to the character.

If a major or destroyed mishap occurs, permanent damage may be taken by the character: reroll 2D on the mishap table to determine the amount of permanent damage taken by the character. The referee must determine how the damage is to be applied: all characteristics are eligible for receiving damage.

The task duration indicates the amount of time the physician must spend on the actual surgical procedure. A period of therapy and healing is required after the initial treatment.

1b Removing Sensory Organs

If the damaged body part is a sensory organ, perform surgery to repair the damaged area as much as possible. The sensory organ and all its functions are lost.

To remove a sensory organ:
Difficult, Medical, Edu, 15 min (hazardous)

Referee: This task requires a surgeon (Dex 8+) for treatment, otherwise increase this task difficulty by one level. If the facility tech level is less than 6, this task becomes fateful.

If a superficial or minor mishap occurs, simply apply additional damage to the character.

If a major or destroyed mishap occurs, permanent damage may be taken by the character: reroll 2D on the mishap table to determine the amount of permanent damage taken by the character.

Continued on next page...

REPLACEMENT BODY PARTS

Step 1b, continued...

The referee must determine how the damage is to be applied: all characteristics are eligible for receiving damage.

The task duration indicates the amount of time the physician must spend on the actual surgical procedure. A period of therapy and healing is required after the initial treatment.

2 Therapy

The injured character must spend a certain period in therapy while learning to cope with the loss of the body part.

New UPP Characteristics: An amputation/removal has the following effect:

- For a lost hand, the character's original Dex drops by 3. Therapy 1D x 10 days.
- For a lost arm, the character's original Dex and Str both drop by 4. Therapy 1D x 15 days.
- For a lost foot, the character's original Dex drops by 2. Therapy 1D x 10 days.
- For a lost leg, the character's original Dex and Str both drop by 3. Therapy 1D x 20 days.
- For the loss of one eye or ear: no Dex or Str loss. Therapy 1D x 5 days.
- For the loss of both eyes, reduce Dex to 1. Every 30 days, the character's Dex increases by one; Dex can return to only one-third of its original level as the character learns to cope with his new handicap.
- For the loss of both ears, reduce Dex by 4. Every 30 days, the character's Dex increases by one until it reaches its original level - 1.

A characteristic cannot go below 1.

Limb Example: John lost an arm and a foot. His old UPP was 999999. His new UPP is 539999.

Sensory Organ Example: Jim has lost both ears. Jim's old UPP was 899777. Jim's modified UPP becomes 859777 for a time. In three months time, his UPP will be up to 889777, the best it can get with the loss of both ears.

Return to step 9, Healing, in the Medical Aid and Treatment sequence.

LIFE SUPPORT (TL 6+)

1 Connecting to Life-Support Equipment

If the damaged part is a vital organ, treatment involves operating to remove the damaged organ and connecting the character to portable life support until a suitable replacement can be installed.

To remove an organ and connect patient to life support:

Difficult, Medical, Edu, 30 min (hazardous)

Referee: This task requires a surgeon (Dex 8+), else increase to formidable. If facility tech level below 7, make fateful. Increase task difficulty one level for upper torso organs (heart and lungs).

If a superficial or minor mishap, simply roll for additional wounds.

If a major or destroyed mishap occurs, permanent damage may be taken by the character: reroll 2D on the mishap table to determine how much permanent damage taken by the character. The referee must determine how the damage is to be applied: all characteristics are eligible for receiving damage.

The task duration indicates the amount of time the physician must spend on the actual surgical procedure. A period of therapy and healing is required after the initial treatment.

Roll once for each organ.

2 While on Life Support Equipment

Life support is not available before tech 6. Treat the life support equipment as a "vacc suit" of the same tech level as the facility (treat tech 6-8 as a tech 9 vacc suit). Prior to tech 8, the patient is bed-ridden. At tech 8, the equipment becomes portable, allowing the user to move about, but he is permanently attached to the life support.

Beginning at tech 9, the life support equipment becomes an actual suit. Such a suit costs Cr500 per day to rent, or Cr50,000 to purchase. If travelling offworld, the equipment must be purchased. Any stressful activity on the part of the patient is a hazardous task and may cause the suit to fail. At tech 13+, this restriction no longer applies.

The life support must be reconditioned at a medical facility once a week, for a cost of Cr500.

Return to step 9, Healing, in the Medical Aid and Treatment sequence.

TRANSPLANT (TL 7 - 11)

1 Finding a Suitable Donor

Depending on the situation, the task for this step will vary. If possible, the patient's condition should be stabilized first (using amputation/removal or life-support), especially if an immediate donor is not available.

Because conditions vary so widely from world to world, no set task can be given for finding a donor. The referee will have to define a suitable task. Factors to take into account are: the legality of donating or selling organs, social and religious attitudes toward transplants, population size, and medical resources available.

2 Performing the Transplant

Performing the transplant involves surgery to remove the damaged part and to replace it with the good part.

To transplant a body part:

Difficult, Medical, Edu, 30 min

Referee: This task requires a surgeon (Dex 8+) for treatment, otherwise increase this task difficulty by one level. If the surgery is for internal injuries, this task becomes hazardous. If the facility tech level is less than 7, this task becomes fateful. Increase the task difficulty to formidable for the upper torso organs (heart and lungs).

If a superficial or minor mishap occurs, simply apply additional damage to the character.

If a major or destroyed mishap occurs, permanent damage may be taken by the character: reroll 2D on the mishap table to determine the amount of permanent damage taken by the character. The referee must determine how the damage is to be applied: all characteristics are eligible for receiving damage.

The task duration indicates the amount of time the physician must spend on the actual surgical procedure. A period of therapy and healing is required after the initial treatment.

Roll once for each body part being transplanted.

TRANSPLANT, continued...

3 Avoiding Rejection of the Transplant

After the transplant, if the medical facility tech level is less than 9, the patient's body may reject the body part.

To avoid rejection of a transplanted body part:

Difficult, Medical, Edu, 1 day (fateful)

Referee: If this task fails, the transplant fails no matter what the level of mishap. If the facility tech level is less than 7, increase the task difficulty to formidable.

Return to step 9, Healing, in the Medical Aid and Treatment sequence.

PROSTHETICS (TL 9+)

1 Select and Install Prosthetic

Surgery is required to remove the damaged part and replace it with a prosthetic. A minimum of tech 9 is required for a prosthetic to be available (certain parts require an even higher tech level). If the facility's tech level is insufficient, a prosthetic cannot be chosen.

To installing a prosthetic:

Difficult, Medical, Edu, 20 min

Referee: This task requires a surgeon (Dex 8+), otherwise increase task difficulty by one level. If surgery is for internal injuries, task becomes hazardous.

If a superficial or minor mishap, apply additional damage to the character.

If a major or destroyed mishap, permanent damage may be taken by the character: reroll 2D on the mishap table to determine the amount of permanent damage taken by the character. The referee must determine how the damage is to be applied: all characteristics are eligible for receiving damage.

The task duration indicates the amount of time the physician must spend on the actual surgical procedure. A period of therapy and healing is required after the initial treatment.

Add the price of the prosthetic to the normal surgery cost. Select the desired prosthetic from the table below.

Special Considerations: The Prosthetics Table shows the tech level and cost of various artificial body parts. All parts use 30-day superbatteries. They are permanently attached, and are controlled directly by a nerve link. A concealed "plug-in" serves as the power input link for recharging.

The batteries take 3 hours to charge at any facility with a power plant. They can also be recharged with a recharger, (1 kg, 1 liter, Cr6,000).

Configuration Notes: An open frame configuration has no covering, and is unsightly, with a distinctly robotic "wires and servos" appearance.

A soft-contoured configuration has a flexible, shaped covering, generally with a skin-toned color.

A hard-contoured configuration has an attractive, hard metallic or ceramic covering, and is robotic in appearance.

A pseudobio configuration is indistinguishable from a normal body part. As far as anyone (even the owner) is concerned, a prosthetic part is a normal limb or sensory organ. The part has a normal sense of touch and feels warm.

Electronic circuit protection provides improved circuit reliability in harsh conditions and increased resistance to circuit damage through the use of heavier components and shielding of critical circuits.

Skull Reconstruction: A non-pseudobio sensory organ is slightly larger than the organic original, and the skull can become overcrowded. If a person has two or more sensory organ replacements (e.g., two eyes, one ear and one eye), the skull must be rebuilt to allow more space. Since open frame organs are externally mounted, they negate this requirement.

Torso Reconstruction: As with the head, the upper or lower torso needs reconstructing if two or more organs are replaced with non-pseudobio internal organs. Since open frame organs are externally mounted, they negate this requirement.

PROSTHETICS TABLE

TL	*Body Part*	*Volume (liters)*	*Weight (kg)*	*Base Price (Cr)*	*Notes*
9	Arm	5.0	12.0	2,000	Str 7
12	+1 Str	+0.5	+1.0	+1,000	per Str point — Str limit 12
12	+ touch sense*	+0.5	+1.0	+2,500	
9	Hand†	0.7	1.5	3,000	Dex 5
12	+1 Dex	+0.05	+0.05	+1,500	per Dex point — Dex limit 10
9	Leg	15.0	30.0	2,500	max speed of 2
12	+ touch sense*	+1.0	+2.0	+1,300	
10	Foot†	1.5	3.0	3,000	
11	Eye	0.03	0.06	300	
12	Ear	0.02	0.02	250	
10	Voicebox	0.05	0.10	1,000	only one voice
9	Skull Reconstruction	—	1.0	5,000	
9	Upper Internal Organ	15.0	30.0	5,000	+1 End per organ
12	Upper Internal Organ	5.0	10.0	5,000	+2 End per organ
12	Lower Internal Organ	3.0	6.0	5,000	+1 to character's life force.
9	Upper Torso Reconstruct		—	5.0	5,000
12	Lower Torso Reconstruct		—	3.0	7,500

*Not available in open frame configuration.
†These parts already possess touch sense.

TL	*Configuration*	*Vol Mod*	*Wt Mod*	*Price Mod*	*Armor Value*
9	Open Frame*	—	x 0.5	x 0.5	0
9	Soft Contoured†	—	—	—	(1)
9	Hard Contoured	—	x 1.2	x 2.0	2
12	Pseudobio**	x 0.7	x 1.5	x 8	(1)
9	Electron Circuit Protection	—	x 1.5	x 1.5	

* If this configuration is selected for a sensory or internal organ, the organ must be "mounted" on the exterior of the body.
** If this configuration is selected for a sensory or internal organ, the organ fits exactly in the orginal organ's location, with no reconstruction necessary.
†No additional functions allowed below TL 12 on prosthetics with this configuration.

REPLACEMENT BODY PARTS

2 Therapy and Healing

The injured character must spend 1D x 10 days in therapy while learning to use the new prosthetic.

New UPP Characteristics: If both limbs (i.e., both arms, or both hands) are prosthetic, use the UPP value shown for the prosthetic. If only one prosthetic is present (i.e., one normal arm, one prosthetic arm), the new UPP value is the average between the normal and the prosthetic limb. See limb example.

Prosthetic upper internal organs simply increase the character's original End by the amount indicated. Prosthetic lower internal organs increase the character's resistance to damage in combat; add 1 to the character's life force for each prosthetic organ installed. See internal organ example.

Limb Example: Bob has a new prosthetic arm and hand. His old UPP was 999999. His new UPP is 879999. (For Str, the average between 9 (old) and 7 (new) is 8; for Dex, the average between 9 (old) and 5 (new) is 7).

Internal Organ Example: Jim has a new prosthetic stomach. Jim's UPP is 899777. Jim's life force is 8+9+9, or 26, for a hits value of 4/5. However, with his new prosthetic stomach, Jim can also add 1 to his life force, for a new total of 27, giving him an improved hits value of 4/6.

Healing: During the therapy period, the character heals at the normal healing rate of +1 per day on 1 characteristic (player's choice).

BIONICS (TL 9+)

1 Design Bionic

A bionic part must be custom designed by an individual or team with robotics skill. A minimum of tech 9 is required for a bionic to be available (most parts require an even higher tech level). If the facility's tech level is insufficient, a bionic cannot be chosen.

To design and produce a bionic part:
Formidable, Medical, Robotics, 2 days

2 Install Bionic

Surgery is required to remove the damaged part and replace it with a bionic.

To install a bionic:
Difficult, Medical, Edu, 20 min

Referee: This task requires a surgeon (Dex 8+) for treatment, otherwise increase this task difficulty by one level. If the surgery is for internal injuries, this task becomes hazardous.

If a superficial or minor mishap occurs, simply apply additional damage to the character.

If a major or destroyed mishap occurs, permanent damage may be taken

continued on the next page...

BIONICS TABLE

TL	Body Part	Volume (liters)	Weight (kg)	Base Price (Cr)	Notes
9	Arm and Hand†	8.0	20.0	5,000 x 2D	Str 15, Dex 10
12	+1 Str	+0.5	+1.0	1,000 x 2D	per point; Str limit TL x 3
12	+1 Dex	+0.5	+1.0	1,200 x 2D	per point; Dex limit 15
12	+1 armor	+0.1	+1.0	2,000 x 2D	per armor point
9	Leg and Foot†	20.0	40.0	10,000 x 2D	max speed of 2
12	+ extra speed**	+1.0	+2.0	5,000 x 2D	per 10 kph; limit TLx 5 kph
12	+ extra jumping**	+1.0	+2.0	3,000 x 2D	per extra10%; lim TLx 20%
12	+1 armor	+0.1	+1.0	2,000 x 2D	per armor point
12	Eye (telescopic)	0.03	0.08	7,000 x 2D	only one extra until TL 15
12	+ light intensifying	+0.01	+0.02	7,000 x 2D	
12	+ IR	+0.01	+0.02	7,000 x 2D	
12	Ear	0.02	0.03	1000 x 2D	includes extra sensitivity
10	Voicebox	0.05	0.15	2,500 x 2D	two voices
	+ extra voice	+0.01	+0.01	2,000 x 2D	per extra voice
	+ modulator	+0.01	+0.01	5,000 x 2D	allows imitating any non-spoken sound
12	Skull Reconstruction*	—	1.5	25,000 x 2D	
12	+1 armor	—	+1.0	3,000 x 2D	per armor point
12	Upper Internal Organ	10.0	20.0	25,000 x 2D	per organ, +5 to End per organ
12	Lower Internal Organ	4.0	8.0	25,000 x 2D	per organ, armor value 2
13	+1 armor	+0.1	+1.0	25,000 x 2D	per armor point, limit +1 per TL over 12
12	UppTorso Reconstrct*	—	6.0	25,000x2D	13
	+1 armor	—	+1.0	25,000x2D	per armor point
12	Low Torso Reconstrct*	—	+4.0	35,000x2D	

*Not available in open frame configuration.
**Requires that both legs be bionic.
†These parts already possess touch sense.

TL	Description	Wt/Price Mod	Armor Value	Notes
9	Open Frame	x0.5	0	0
9	Soft Contoured†	x1.0	(1)	TL x 0.75*
9	Hard Contoured	x1.2	2	TL x 1.5
12	Pseudobio	x8	(1)	TL x 0.5*
9	Electron Circuit Protection	—	x 1.5	x 1.5

*Any additional armor eliminates the hand-to-hand only armor value restriction (i.e., the parentheses). Armor is a heavy casing between the internals and the "skin" surface, giving additional protection to all internal components (though not to the surface skin and touch sensors).
†Soft contoured is not allowed on bionics below TL 12.

Step 2, continued...
by the character: reroll 2D on the mishap table to determine the amount of permanent damage taken by the character. The referee must determine how the damage is to be applied: all characteristics are eligible for receiving damage.

The task duration indicates the amount of time the physician must spend on the actual surgical procedure. A period of therapy and healing is required after the initial treatment.

Add the price of the bionic to the normal surgery cost. Select the desired bionic from the table (previous page).

Special Considerations: Same as prosthetics.

Configuration Notes: Same as prosthetics.

Skull Reconstruction: Same as prosthetics.

Torso Reconstruction: Same as prosthetics.

3 Therapy and Healing

Same as prosthetics. With bionics, it is possible for a character to extend his life force beyond standard norms. For characters having bionic parts and thus a new life force which goes beyond that shown on page 66 of the *Players' Manual*, here is a table of extended life force hits values:

Extended Life Force Table

Life Force	*Hits Value*
48+	6/11
51+	7/10
54+	7/11
57+	7/12
60+	8/11
63+	8/12
66+	8/13
69+	9/12
72+	9/13
75+	9/14
78+	10/13
81+	10/14
84+	10/15
87+	11/14
90+	11/15
93+	11/16
96+	12/15
99+	12/16

ADDITIONAL BIONIC IMPLANTS AND SPECIAL SYSTEMS

The following are exclusively bionic items. Items labeled as implants can be selected by any character as a deliberate add-on at any time, whether the character has been injured or not.

Only one special system may be built into each artificial body part. For example, A bionic left arm can hold a blade or a laser, but not both. A bionic throat may hold an artificial gill or a combination breather, but not both.

Artificial Gill Implant: A miniaturized artificial gill may be implanted in the throat, allowing the character to breathe any liquid containing dissolved oxygen. Tech level 12, Cr8,000.

Blade: A spring-loaded dagger can be inserted in the wrist, to pop out whenever the character wishes. May be inserted in an artificial lower arm and hand. Acts as dagger. Tech level 10, Cr1,000.

Chameleon Surface: A special layer inside artificial skin covering that acts as chameleon combat armor, creating a special IR pattern. Tech level 13, Cr2,000.

Combination Breather Implant: A miniaturized filter/compressor system which allows the character to breathe both very thin and tainted atmospheres. Tech level 9, Cr1,000.

Grav System: A grav module built into a reconstructed torso allowing the character to fly. Tech level 13, Cr120,000.

Integral Laser Pistol: An integral laser pistol built into the lower arm and hand. (tech level 15, Cr16,000). For Cr25,000, a 10-shot version is available. The power pack must be installed in a reconstructed torso. The 3-shot battery must be replaced for Cr3,000; the 10-shot battery can be recharged.

Magnetic Sensor: A sensor detecting magnetic fields and ferrous metals. Tech level 13, Cr1,500.

Mass Sensor: A sensor detecting mass and gravity. Tech level 12, Cr1,500.

Pocket: A small hidden compartment beneath skin covering which can hold small objects such as tapes, holocrystals, jewels, etc. Useful for smuggling. Tech level 10, Cr500.

Psionic Shield: A miniaturized psionic shield system built into a reconstructed head. Tech level 12, Cr6,000.

Radiation Sensor: A miniature radiation sensor. Tech level 10, Cr1,800.

Radio: A 20km range miniaturized radio. Tech level 10 Cr1500. A 200km version is avaliable at tech level 15 for Cr3,000.

Vacuum Tolerance: For an extra Cr50,000 x 2D, anyone with a fully reconstructed, hard contoured body (i.e., all limbs, head, torso, organs, and parts bionic) can be made to withstand vacuum. Includes a 24-hour air supply built in.•

A MegaTraveller Starship Design Example

THE GAMING DIGEST
—by Joe D. Fugate Sr.

"This starship is, well ... amazing—"

"Yes, I designed it that way! It has both a meson spinal mount and a particle beam spinal mount, jump-6, maneuver-6, agility-6, and all in only 10,000 tons. Neat, huh?"

"Well, it's unusual, but I don't think it's a valid design—"

"What do you mean 'not valid?' It just happens that if you read this rule on power output so that..."

Sound familiar? Designing a starship can be an arduous process, involving many trade-offs. If you misunderstand some of the rules, you can end up making rather bizarre designs, and even totally wrong ones.

In this "Gaming Digest", we look at how to design a starship in **MegaTraveller** using a step-by-step example. There were some discrepancies in the original printing of the *Referee's Manual* (most of these have been corrected in the second edition); these have been identified and corrected in the current **MegaTraveller** errata. For those who do not have the **MegaTraveller** errata, we have included the latest errata for craft design with this article.

You will get the most from this example by getting your *Referee's Manual* and following along.

AN EXAMPLE: THE BATTLECRUISER *REGAL*

Most of the **MegaTraveller** starship designs presented in the *Imperial Encyclopedia* arenon-military vessels under 1,000 tons displacement. As an in-depth illustration of the design system, we will develop a large military starship design. For those familiar with **Traveller's** old *High Guard* design system, we have selected a *High Guard* design from *Supplement 5, Trillion Credit Squadron*—the battlecruiser *Regal* — as a particularly appropriate example. By using an old **Traveller** design, we can not only illustrate how **MegaTraveller** starship design works, but also provide insights into converting from the old system to the new one.

THE HULL SECTION

The battlecruiser *Regal* is a 75,000-ton displacement (1,010,000 kiloliter) vessel.

Starting on page 62 of the *Referee's Manual,* step 1 says we need a *hull.* We select our 75,000 UCP displacement hull from the Space Vessel Hull Table (step 4). We skipped steps 2 and 3 because they apply to small craft or small vehicles. Using a sheet of lined paper, we make our first entry as shown:

Tech Level 14 Battlecruiser Regal

Hull Section	*Power*	*Vol*	*Weight*	*Price*
UCP Disp=75,000	———	1,010,000	15,000	44,600,000

Notice we have set up four columns: power, volume, weight, and price.

Next, we go on in the *Referee's Manual* to step 5, Configuration and Streamlining. The original design in *Trillion Credit Squadron* (hereafter called *TCS)* had a needle/wedge configuration, so we select that configuration. Notice we must apply certain price and weight modifiers for the chosen configuration. We also select streamlined, which happens to be the minimum streamlining we can get with this configuration. We now have the following on our sheet of paper:

Tech Level 14 Battlecruiser Regal

Hull Section	*Power*	*Vol*	*Weight*	*Price*
UCP Disp=75,000	———	1,010,000	15,000	44,600,000
Config=1SL	———	———	x1.0	x1.2
			15,000	53,520,000

So far so good. We skip step 6, Planetoid Configurations, since we aren't using that configuration. We move on to step 7, Armor. We want the best type of armor we can get for the money and the tech level, so the choice is an easy one: bonded superdense (type G):

Tech Level 14 Battlecruiser Regal

Hull Section	*Power*	*Vol*	*Weight*	*Price*
UCP Disp=75,000	———	1,010,000	15,000	44,600,000
Config=1SL	———	———	x1.0	x1.2
			15,000	53,520,000
Armor Type=G	———	———	x0.14	x1
			2,100	53,520,000

Step 8 tells us all starships need a minimum armor value of 40. We don't want to put any extra armor on the design since the original in *TCS* didn't have any extra armor. When we get to step 9, Armor, we select the basic value of 40. Notice this entry has a modifier of 33. So, according to step 10, Weight and Price, we have:

Tech Level 14 Battlecruiser Regal

Hull Section	*Power*	*Vol*	*Weight*	*Price*
UCP Disp=75000	———	1,010,000	15,000	44,600,000
Config=1SL	———	———	x1.0	x1.2
			15,000	53,520,000
Armor Type=G	———	———	x0.14	x1
			2,100	53,520,000
Armor Rating=40	———	———	x33	x33
			69,300	1,766,160,000

We skip steps 11 and 12 since they apply only to small vehicles. Our final hull section total is:

Hull Section	*Power*	*Vol*	*Weight*	*Price*
Hull Section Total	0	1,010,000	69,300	1,766,160,000

Now that we've finished the hull design, it's on to the power supply section, right? Not necessarily. It is often more convenient to skip the power supply section and come back to it later, especially when designing a warship with power-hungry weapons. In fact, we're going to do all the sections through screens, and part of the control section (mainly the power-hungry environment portion) before we come back to the power supply.

This is important, so let's emphasize the concept at work here. *Don't become a slave to the rules.* The rules are organized to follow a logical sequence, and to help the novice get started. The prescribed sequence should never get in your way — if it does, then by all means, change it.

So we'll do just that. We are skipping the power supply section for the moment, and moving on to locomotion.

THE LOCOMOTION SECTION

According to the original design specs for the *Regal* as given in *TCS*, we want the design to be jump-4 and maneuver-6.

Going to step 3, Jump Units Required, on page 65 of the *Referee's Manual*, we find that for jump 4 in a hull UCP size of 75,000 we need 2,750 units of jump drive:

Locomotion Section	*Power*	*Vol*	*Weight*	*Price*
Jump=4		13.50	27	3,000,000
2,750 units	0	-37,125	74,250	8,250,000,000

Note: Many of the entries in this article use this two-line format. The first line shows the "per unit" values; the second line shows the total computed values. For example, using the volume column, 13.50 times 2,750 units equals 37,125.

Note that because a jump drive *uses* volume, we subtract the jump drive volume rather than add it. Step 4, Jump Fuel Volume comes next, so we determine the jump drive fuel volume to be:

Locomotion Section	*Power*	*Vol*	*Weight*	*Price*
Jump=4		13.50	27	3,000,000
2,750 units	0	-37,125	74,250	8,250,000,000
Jump Fuel	———	x5	———	———
	———-	-185,625	———	———

Next, we need to install a 6G maneuver drive. Looking at the table in step 5, Maneuver Drive, we arrive at the following for a UCP 75,000 hull:

Locomotion Section	*Power*	*Vol*	*Weight*	*Price*
Jump=4		13.50	27	3,000,000
2,750 units	0	-37,125	74,250	8,250,000,000
Jump Fuel	———	x5	———	———
	———-	-185,625	———	———
Maneuver=6 (Thrusters)	70	13.50	35	600,000
12,750 units	-892,500	-172,125	446,250	7,650,000,000

Notice that a maneuver drive uses power in addition to taking volume, so we subtract both the power figure and the volume figure. We follow this method all through design.

We skip steps 6, 7, and 8 because they apply to small vehicles, and go on to step 9, Avionics. We install a tech level 14 avionics unit, giving us:

Locomotion Section	*Power*	*Vol*	*Weight*	*Price*
Jump=4		13.50	27	3,000,000
2,750 units	0	-37,125	74,250	8,250,000,000
Jump Fuel	———	x5	———	———
	———-	-185,625	———	———
Maneuver=6 (Thrusters)	70	13.50	35	600,000
12,750 units	-892,500	-172,125	446,250	7,650,000,000
Avionics (NOE 180)	-0.02	-0.10	0.05	16,000

Our total for the locomotion section is thus:

Locomotion Section	*Power*	*Vol*	*Weight*	*Price*
Locomotion Total	-892,500.02	-394,875.1	520,500	15,903,016,000

Applying this to our total from the hull section gives us:

	Power	*Vol*	*Weight*	*Price*
Hull Section Total	0	1,010,000	69,300	1,766,160,000
Locomotion Total	-892,5002	-394,875	520,500	15,903,016,000
Net Total so far...	-892,500	615,124	589,800	17,669,176,000

THE COMMUNICATIONS SECTION

Since the original *High Guard* starship design system never dealt with communications equipment, the original *Regal* design in *TCS* does not specifiy what type to install. But it seems reasonable that such a military vessel would at least have a system range radio, and some type of tight-beam communications as well for private messages. Just for good measure, we'll install both laser and maser communicators.

Because this is a military vessel, let's also install redundant equipment for use as a backup in case the primaries fail: let's make it two of each kind, system range:

Communication Section	*Power*	*Vol*	*Weight*	*Price*
Radio, system range	0.010	0.020	0.010	150,000
2 units	-0.020	-0.040	0.020	300,000
Laser, system range	0.015	0.030	0.015	180,000
2 units	-0.030	-0.060	0.030	360,000
Maser, system range	0.045	0.090	0.045	250,000
2 units	-0.090	-0.180	0.090	500,000
Communication Total	-0.140	-0.280	0.140	1,160,000

Applying the communication section totals gives us:

	Power	*Vol*	*Weight*	*Price*
Hull Section Total	0	1,010,000	69,300	1,766,160,000
Locomotion Total	-892,500	-394,875	520,500	15,903,016,000
Communication Total	-0.140	-0.280	0.140	1,160,000
Net Total so far...	-892,501	615,123	589,800	17,670,236,000

THE SENSORS SECTION

We're in the same situation with sensors as we were with communicators: *High Guard* never explicitly covered them, so we're on our own again.

Given that the *Regal* is a warship, its sensors are its eyes, so it should have good ones, and plenty of them. We will give it all of the four basic groups: active EMS, passive EMS, densitometer, and neutrino. In addition, we'd like the *Regal* to be more difficult to spot by the enemy's passive EMS, so we'll give ourselves EM masking. And if we install an EMS jammer, we'll make the enemy's active EMS more difficult to use. Here's what we end up with:

Sensors Section	*Power*	*Vol*	*Weight*	*Price*
EM Mask	1,010	20,200	10,100	5,050,000,000
EMS Pas (Interstellar)	0.20	0.04	0.02	400,000
EMS Active (Far Orbit)	0.30	0.06	0.03	600,000
Densitometer (High)	0.40	7.00	1.50	1,500,000
Neutrino (10kw)	0.20	0.20	0.10	110,000
EMS Jammer (Far Orbit)	0.60	0.12	0.06	1,200,000
Sensors Total	1,012	20,207	10,102	5,053,810,000

Applying the sensors section to our totals gives us:

	Power	*Vol*	*Weight*	*Price*
Hull Section Total	0	1,010,000	69,300	1,766,160,000
Locomotion Total	-892,500	-394,875	520,500	15,903,016,000
Communication Total	-0.140	-0.280	0.140	1,160,000
Sensors Total	-1,012	-20,207	10,102	5,053,810,000
Net Total so far...	-893,513	594,916	599,902	22,724,046,000

THE WEAPONS SECTION

Now, to the weapons. The original *Regal* design lists these weapons:

- One type S meson spinal mount
- Ten 100-ton particle accelerator bays (factor 9)
- Five 100-ton repulsor bays (factor 8)
- Five 50-ton fusion gun bays (factor 8)
- 100 triple missile turrets (10 batteries, factor 9)
- 100 triple beam laser turrets (10 batteries, factor 9)
- 100 triple sandcaster turrets (10 batteries, factor 9)

Looking at page 71 of the *Referee's Manual*, we see the first step in installing weapons is to compute the available hardpoints. Taking our hull displacement of 1,010,000 kiloliters and dividing it by 1,350, we get 748 hardpoints.

The first weapon we install is the type S meson gun:

Weapons Section	*Power*	*Vol*	*Weight*	*Price*
Meson S (Spinal)	300,000	110,000	19,000	2,000,000,000

The type S meson spinal mount takes 80 hardpoints, which leaves us with 668 hardpoints. We go on to step 7, 100-ton Bay Weaponry.

We look up particle accelerator on the table and see that a tech level 14 particle accelerator has a UCP factor of 9:

Weapons Section	*Power*	*Vol*	*Weight*	*Price*
Part Accel Bays	15,000	1,350	75	35,000,000
100 ton 10 X 9 (100)	150,000	13,500	750	350,000,000

The number in parentheses is the hardpoint cost. Each particle accelerator bay takes 10 hardpoints (see step 6, Bays), so ten bays take 100 hardpoints, leaving 568 hardpoints available. Moving to the ten 100-ton repulsor bays:

Weapons Section	*Power*	*Vol*	*Weight*	*Price*
Repulsor Bays	2,500	1,350	60	10,000,000
100 ton 5x8 (50)	12,500	6,750	300	50,000,000

The repulsor bays take another 50 hardpoints, which drops us down to 518 available hardpoints. For the 50-ton fusion bays, we move on to step 8, 50-ton Bay weaponry:

Weapons Section	*Power*	*Vol*	*Weight*	*Price*
Fusion Bays	5,000	675	35	8,000,000
50 ton 5X8 (50)	25,000	3,375	175	40,000,000

Subtracting the 50 hardpoints for the fusion bays, we now have 468 hardpoints left.

Next, we reach step 10, Missile Turrets (top of page 73). If we install 100 triple missile turrets, we are actually installing 300 individual missile "launchers". If we look at the table in step 10, we see that 30 units of tech 13 missile launchers give us a factor 7. For craft profile purposes, what we have are 10 batteries of factor 7 missile turrets. See how it works? Installing the missiles we get:

Weapons Section	*Power*	*Vol*	*Weight*	*Price*
TL13 Missile Turret	1	13.50	2	750,000
10 X 7 (300)	300	4,050	600	225,000,000

Each *turret* takes 1 hardpoint (see step 9, Turrets). The 100 missile turrets thus take 100 hardpoints, leaving us with 368 unused hardpoints left. Notice the best use of hardpoints when working with turrets comes from maximizing the number of weapons installed in a turret. In this case, we have installed three missile launchers per turret. The effect is that we get two "free" weapons with no additional cost in hardpoints.

We move on to step 11, Laser Turrets. The *Regal* has 100 triple beam turrets — which makes the installation procedure virtually identical to those for the missile turrets. The 100 beam laser turrets also take 100 hardpoints, leaving us with 268 hardpoints.

Lastly, we install the 100 triple sandcaster turrets, taking another 100 hardpoints. We still have 168 hardpoints left, and the complete lineup of weapons looks like this:

Weapons Section	*Power*	*Vol*	*Weight*	*Price*
Meson S (Spinal)	-300,000	-110,000	19,000	2,000,000,000
Part Accel Bays	15,000	1,350	75	35,000,000
100 ton 10 X 9 (10)	-150,000	-13,500	750	350,000,000
Repulsor Bays	2,500	1,350	60	10,000,000
100 ton 5x8 (5)	-12,500	-6,750	300	50,000,000
Fusion Bays	5,000	675	35	8,000,000
50 ton 5X8 (5)	-25,000	-3,375	175	40,000,000
TL13 Missile Turret	1	13.50	2	750,000
10 X 7 (300)	-300	-4,050	600	225,000,000
TL13 Beam Laser T	250	13.50	4	1,000,000
10 X 9 (300)	-75,000	-4,050	1,200	300,000,000
TL10 Sandcaster T	1	13.50	2	250,000
10 X 9 (300)	-300	-4,050	600	75,000,000

Even though the original design didn't mount any more weapons, it seems a real shame — even foolhardy — to not use up those hardpoints. If we can add some type of weapons system with very little extra cost in energy, then it seems prudent to do so. As a crewmember of the *Regal*, I'd feel better knowing the designer packed the weapon capacity of my warship to the max. Wouldn't you?

The obvious choice is more missile turrets. Each turret takes only 1 megawatt. With 168 hardpoints left, if we multiply that figure by 3 (triple missile turrets, remember), we get 504. Next, if we divide 504 by 30 (the number of TL13 missile launchers it takes to get a factor 7: see the table in step 10 again), we get 16.8, or just 16 (the .8 is not enough for us to get another battery). So we can add 16 more factor 7 missile batteries. Did you follow that? Reread it again if you did not. It's really quite simple if you just take it a step at a time.

Adding 16 more factor 7 missile batteries (each with 10 triple missile turrets, for a total of 30 missile launchers per battery) brings our missile battery total from 10 to 26. This also means we use 160 more turrets, and thus 160 more hardpoints, leaving only 8 hardpoints left. That's much better than 168 hardpoints left. So, after everything, we get:

Weapons Section	*Power*	*Vol*	*Weight*	*Price*
Meson S (Spinal)	-300,000	-110,000	19,000	2,000,000,000
Part Accel Bays	15,000	1,350	75	35,000,000
100 ton 10 X 9 (10)	-150,000	-13,500	750	350,000,000
Repulsor Bays	2,500	1,350	60	10,000,000
100 ton 5x8 (5)	-12,500	-6,750	300	50,000,000
Fusion Bays	5,000	675	35	8,000,000
50 ton 5X8 (5)	-25,000	-3,375	175	40,000,000
TL13 Missile Turret	1	13.50	2	750,000
26 X 7 (780)	-780	-10,530	1,560	585,000,000
TL13 Beam Laser T	250	13.50	4	1,000,000
10 X 9 (300)	-75,000	-4,050	1,200	300,000,000
TL10 Sandcaster T	1	13.50	2	250,000
10 X 9 (300)	-300	-4,050	600	75,000,000
Weapons Total	-563,580	-152,255	23,585	3,400,000,000

Applying the weapons section to the totals:

	Power	Vol	Weight	Price
Hull Section Total	0	1,010,000	69,300	1,766,160,000
Locomotion Total	-892,500	-394,875	520,500	15,903,016,000
Communication Total	-0.140	-0.280	0.140	1,160,000
Sensors Total	-1,012	-20,207	10,102	5,053,810,000
Weapons Total	-563,580	-152,255	23,585	3,400,000,000
Net Total so far...	-1,457,093	442,661	623,487	26,124,046,000

THE SCREENS SECTION

The *Regal* has two screens: a factor 6 nuclear damper, and a factor 6 meson screen. Screens are listed on page 80 of the *Referee's Manual.* Nuclear dampers are in step 2; we select a factor 6 damper screen:

	Power	Vol	Weight	Price
Nuclear Damper (6)	-15,000	-160	180	38,000,000

A meson screen (step 3) works a bit differently: power is based on the hull volume, so the larger the vessel, the more power that is required. The power requirement for a factor 6 meson screen is 0.9 megawatts per kiloliter, and the *Regal* has a volume of 1,010, 000 kiloliters. So multiplying 0.9 by 1,010,000 gives us 909,000 megawatts. Installing the factor 6 meson screen gives us:

	Power	Vol	Weight	Price
Meson Screen (6)	-90,900	-215	160	40,000,000

Adding the totals for the screen section, we get:

	Power	Vol	Weight	Price
Hull Section Total	0	1,010,000	69,300	1,766,160,000
Locomotion Total	-892,500	-394,875	520,500	15,903,016,000
Communication Total	-0.140	-0.280	0.140	1,160,000
Sensors Total	-1,012	-20,207	10,102	5,053,810,000
Weapons Total	-563,580	-152,255	23,585	3,400,000,000
Screens Total	-105,900	-375	340	78,000,000
Net Total so far...	-1,562,993	442,286	623,827	26,202,046,000

THE ENVIRONMENT CONTROLS

Let's do one more part before we go back and see what we need for a power plant: the ship's environment controls (that is, it's life support). For that, we need to go to the top of page 81 of the *Referee's Manual.*

Original *High Guard* never dealt with this at all, so once again, we're on our own. We'll just put in the standard: basic environ, basic life support, extended life support, grav plates, and inertial compensators. All of these are per kiloliter of ship hull, so multiplying each by the *Regal's* hull volume of 1,010,000 kiloliters, we get:

	Power	Vol	Weight	Price
Basic Environ	-1,010	-5,050	5,050	10,100,000
Basic Life Sup	-1,010	-5,050	5,050	303,000,000
Ext Life Sup	-2,020	-3,030	3,030	202,000,000
Grav Plates	-50,500	-10,100	20,200	505,000,000
Inertial Comp	-20,200	-10,100	20,200	252,500,000
Environ Total	-74,740	-33,330	53,530	1,272,600,000

Adding in the environment controls to the rest of totals, we get:

	Power	Vol	Weight	Price
Hull Section Total	0	1,010,000	69,300	1,766,160,000
Locomotion Total	-892,500	-394,875	520,500	15,903,016,000
Communication Total	-0.140	-0.280	0.140	1,160,000
Sensors Total	-1,012	-20,207	10,102	5,053,810,000
Weapons Total	-563,580	-152,255	23,585	3,400,000,000
Screens Total	-105,900	-375	340	78,000,000
Environ Total	-74,740	33,330	53,530	1,272,600,000
Net Total so far...	-1,637,733	408,956	677,357	27,474,646,000

ESTIMATING THE CREW

It helps to estimate the one other volume intensive component of a starship ahead of time: the number of crew.

As a very rough rule of thumb, we can estimate the number of crew by figuring one crew member per 1500 kiloliters of volume. So the *Regal*, with 1,010,000 kiloliters of volume, would estimate about 670 crew members. Remember this is *very* rough, but it does help us establish ahead of time what the crew volume requirements will likely be. With the 670 figure, if we further assume double occupancy (almost a requirement on a warship loaded with power-hungry weapons — and not that bad either, since only half the crew could be on duty at any given time), we need 335 staterooms.

Looking on page 82 of the *Referee's Manual,* step 9, Extended Accommodations, we find a standard stateroom takes 54 kiloliters. Multiplying 54 by 335 yields 18,090 kiloliters. Subtracting that volume from 408,956 gives us a "working volume" of 390,866 kiloliters.

THE POWER SUPPLY SECTION

Ah, at last, the power supply. We go back to page 64 of the *Referee's Manual.* We want to install a tech level 14 fusion plant. Using the net power total above, we need to design a plant that can produce about 2.5 million megawatts. From step 2, Scale Efficiency in the *Referee's Manual*, we know that any fusion power plant over 14 kiloliters in size has its power output multiplied by 3.

So working backwards from the power requirement of 1.6 million megawatts, we divide it by the scale efficiency figure of 3 to get a "raw, unimproved" output figure of 533,334. Looking at step 1, we see a TL14 plant is capable of a power output of 3 megawatts per kiloliter. To get the number of power plant units we're going to need, we further divide 533,334 by 3, getting 177,778 units of power plant. We know each entry in the power plant table is for a volume of one kiloliter, we thus need 177,778 kiloliters of power plant to power the *Regal.*

Before we go too much further, we also need to consider fuel and duration needs to see how reasonable this power plant is. The 177,778 kiloliters takes almost half of the working volume of 390,866 kiloliters. How much fuel tankage do we need to keep this plant running for the preferred 30 days duration? Looking at the TL14 fusion line on the table again, we see the fuel consuption is 0.005 kiloliters per hour — per kiloliter of power plant, that is.

Another thing to consider at this point: fuel purification. We already know the amount of fuel used by the jump drive, in the *Regal's* case, 185,625 kiloliters. From this and the table on page 83 (Fuel Purification Plant, step 3) we can determine at least how large a purification plant to install for the jump drive fuel:

	Power	Vol	Weight	Price
Fuel Purification	0.005	0.25	0.5	140
185,625 units	928.125	46,406.25	92,812.5	25,987,500

Adding this in to the rest of totals, we get:

	Power	Vol	Weight	Price
Hull Section Total	0	1,010,000	69,300	1,766,160,000
Locomotion Total	-892,500	-394,875	520,500	15,903,016,000
Communication Total	-0.140	-0.280	0.140	1,160,000
Sensors Total	-1,012	-20,207	10,102	5,053,810,000

Weapons Total	-563,580	-152,255	23,585	3,400,000,000
Screens Total	-105,900	-375	340	78,000,000
Environ Total	-74,740	-33,330	53,530	1,272,600,000
Fuel Purification	-928.125	-46,406.25	92,812.5	25,987,500
Net Total so far...	-1,636,804	362,549	770,170	27,500,633,500

For the unknown quantity of power plant fuel, a good "trick" is to include the fuel purification volume requirement in the fuel per hour volume requirement, giving us a sort of "fuel capacity rate." To do so, use the following table:

Fuel Consumption Modifiers To Include Fuel Purification

TL	*Mod*
8	x1.70
9	x1.60
10	x1.55
11	x1.45
12	x1.40
13	x1.35
14	x1.25
15	x1.20
16	x1.15
17	x1.05

A tech 14 fuel purification plant has a modifier of 1.25. We multiply the basic fuel consumption rate of 0.005 by 1.25 to get a "fuel capacity" rate of 0.00625.

So 0.00625 times 177,778 gives us 1,111 kiloliters of fuel per hour. Multiply 1,111 by 24 to get the fuel requirement for one day: 26,664; multiply that by 30 to get the fuel requirements for 30 days: 799,920 kiloliters. This, coupled with the volume of the power plant, far exceeds the 390,866 kiloliters we have. What are we to do?

Interestingly enough, this "problem" is fairly common with the new design system. With all components now using power (as they should), producing a starship design involves more trade-offs than it used to. No longer can you design a very large, very agile starship bristling with power-hungry weapons and screens. A well-balanced design is now more of a challenge, and we believe it is also more fun to work up and more realistic when finished.

There are a lot of subtle implications of the new, more detailed starship design system — more than we can possibly cover here in this article. Look for a future article on the new starship design philosphies. For now, we will discuss the most common alterations needed to an old starship design in order to update it.

High maneuver *and* high agility in large starships are no longer very achievable in a design if you also want a high jump number or lots of energy-hungry weapons or a multitude of screens. Let's examine the effects of this on the design of the *Regal.*

The old *Regal* design in *TCS* had a maneuver drive 6 — with the new design system, the power and volume requirements of such a maneuver drive are much too large. It seems reasonable that if we drop the maneuver drive all the way from 6 down to 1, we might be in much better shape. How could I guess that? Experience: do a few designs of your own and you'll get the knack of it. Here's what we would get by downsizing the maneuver capability:

	Power	*Vol*	*Weight*	*Price*
Old:				
Maneuver=6 (Thrusters)	70	13.50	35	600,000
12750 units	-892,500	-172,125	446,250	7,650,000,000
New:				
Maneuver=2 (Thrusters)	70	13.50	35	600,000
1500 units	-105,000	-20,250	52,500	900,000,000
Difference	787,500	151,875	393,750	6,750,000,000

We have just regained 151,875 kiloliters of volume, and *reduced* our power requirement by 787,500 megawatts! We can add the 151,875 back to the 390,866 to get a new working volume of 542,741. How does all of this affect our power plant design?

Since we've reduced our power needs from 1.6 million down to 0.9 million megawatts, we divide by 3 (the scale efficiency) to find we now need a raw output of only about 300,000 megawatts. At 3 megawatts per unit of fusion plant, we need about 100,000 units of power plant.

Recomputing the fuel requirements, we get: 0.00625 x 94,445 x 24 x 30 to get the fuel requirement for 30 days: 450,000 kiloliters. Within our now available volume of 542,741 kiloliters!

So the power plant section totals are:

Power Plant Section	*Power*	*Vol*	*Weight*	*Price*
Fusion	3	1	3	200,000
Scale efficiencyx 3	9			
100,000 units	900,000	100,000	300,000	20,000,000,000

And applying the power plant totals to the totals so far (the locomotion section total now reflects maneuver 1):

	Power	*Vol*	*Weight*	*Price*
Hull Section Total	0	1,010,000	69,300	1,766,160,000
Locomotion Total	-105,000	-243,000	126,750	9,150,016,000
Communication Total	-0.140	-0.280	0.140	1,160,000
Sensors Total	-1,012	-20,207	10,102	5,053,810,000
Weapons Total	-563,580	-152,255	23,585	3,400,000,000
Screens Total	-105,900	-375	340	78,000,000
Environ Total	-74,740	-33,330	53,530	1,272,600,000
Power Plant Total	900,000	100,000	300,000	20,000,000,000
Fuel Purification	-928.125	-46,406.25	92,812.5	25,987,500
Net Total so far...	48,838	243,086	676,420	40,747,733,500

THE CONTROLS SECTION

We've already figured out what the environmental controls are, so it's on to the computer and control panels. For this, we first need to determine the number of control points, as specified in step 2 on page 81 of the *Referee's Manual.* Price and tech level are used for computing the CP requirements. Here are all the computations:

Hull CP:	(1,766,160,000/100,000) x 14 =	247,262.4
Pwr Plnt CP:	(20,000,000,000/100,000) x 14 =	2,800,000.0
Loco CP:	(9,150,016,000/100,000) x 14 =	1,281,002.2
Commo CP:	(1,160,000/100,000) x 14 =	162.4
Sensors CP:	(5,053,810,000/100,000) x 14 =	707,533.4
Weapons CP:	(3,400,000,000/100,000) x 14 =	476,000.0
Screens CP:	(78,000,000/100,000) x 14 =	10,920.0
Environ CP:	(1,272,600,000/100,000) x 14 =	178,164.0
Total CP:		5,701,044.4

The *Regal* needs nearly 6 million control points in control panels and computer equipment. The best computer we can install is a tech 14 model 8/fib, which multiplies the CP input from our control panels by 95. To see how much CP input into the computer we need in order to get 5,701,044.4 control points out, we can divide the 5,701,044.4 by the computer's multiplier of 95, giving us 60,011 CP needed as input.

We look at steps 4 and 5 on page 81 to determine our con-

trol panel mix. For starters, we know we have a big crew. A good way to provide the crew with good control input is to install several large holodisplays — in this case we'll say 10 of them. That's 15,000 CP right off the top, leaving 45,011 CP. We can cover the remaining CP with holographic linked (also sometimes called holodynamic linked) control panel units. Each of these provides 1.5 CP, so again, dividing we get: 70,261.1/1.5, or 30,008 control panel units. Because a starship is a "flying craft", we need to install three computers (2 backups). We also opt for electronic circuit protection, which multiplies the weight and price of all these components by 1.5. Our totals thus are:

Controls Section	*Power*	*Vol*	*Weight*	*Price*
Computer 8fib	0.018	28	7	30,500,000
3 units	0.054	84	32	137,250,000
Holo Link Ctl Panel	0.002	0.030	0.020	1,000
30,008 units	60.016	1350	900	45,012,000
Large Holodisplay	0.050	2	1	500,000
10 units	0.500	20	15	7,500,000
Controls Total	61	1,454	947	189,762,000

Which brings our net totals to:

	Power	*Vol*	*Weight*	*Price*
Hull Section Total	0	1,010,000	69,300	1,766,160,000
Locomotion Total	-105,000	-243,000	126,750	9,150,016,000
Communication Total	-0.140	-0.280	0.140	1,160,000
Sensors Total	-1,012	-20,207	10,102	5,053,810,000
Weapons Total	-563,580	-152,255	23,585	3,400,000,000
Screens Total	-105,900	-375	340	78,000,000
Environ Total	-74,740	-33,330	53,530	1,272,600,000
Power Plant Total	900,000	-100,000	300,000	20,000,000,000
Fuel Purification	-928.125	-46,406.25	92,812.5	25,987,500
Controls Total	-61	-1,454	947	189,762,000
Net Total so far...	48,779	412,972	677,367	40,937,495,500

THE ACCOMMODATIONS SECTION

Here's where we get to figure out how big the crew really is. To do that, refer to page 82 of the *Referee's Manual.* For starships, start with step 7.

Here are the crew computations for the *Regal:*

Bridge: (5,701,044.4 /95)/750 = 81; 81 > 10, so: 10+(81/10) = 18
Engineering: ((2,800,000+1,281,002.2)/95)/400 = 108
Maintenance: ((247,262.4+10,100)/95)/400 = 7
Gunners: ((476,000+10,920)/95)/10 = 512; 512 > 50, so: 50+(512/ 50) = 60
Flight: 0
Ships Troops: (75,000/1000) x 1.4 = 105
Command: (18+108+7+60+105)/6 = 49
Stewards: (49/8)+(298/50) = 12
Frozen Watch: (18+108+7+60+105+49+12) = 359/75 = 5
(5 crewmen x 88 segments = 440 frozen watch)
Medical: (359/120) + (440/20) = 25

Total Crew: 384

Step 8 on page 82 describes how to determine crew segments. We divide the *Regal's* hull volume of 1,010,000 by 13,500 to get the number of crew segments, in this case: 75. Dividing the total crew of 384 by 75 yields a crew segment size of 5.

We need staterooms for the 384 members of the crew. As mentioned earlier, double occupancy is common on a military vessel, so we actually can make do with 192 staterooms. However, let's give 84 of the crew (the 49 commanding officers plus 35 of the regulars) their own staterooms. That leaves 300 crewman to get double occupancy staterooms, or 150 staterooms (double occupancy), plus 84 (single occupancy), for a total of 234 staterooms. We'll install small staterooms to save space.

Also, we need low berths for the 440 frozen watch. Here are the figures:

Accommo Section	*Power*	*Vol*	*Weight*	*Price*
Small Staterooms x 234	0.002	27	2	40,000
	0.468	6,318	468	9,360,000
Low Berths x 440	0.001	14	1	50,000
	0.440	5,940	440	22,000,000
Accommo Total	0.908	12,258	908	31,360,000

Our net totals are:

	Power	*Vol*	*Weight*	*Price*
Hull Section Total	0	1,010,000	69,300	1,766,160,000
Locomotion Total	-105,000	-243,000	126,750	9,150,016,000
Communication Total	-0.140	-0.280	0.140	1,160,000
Sensors Total	-1,012	-20,207	10,102	5,053,810,000
Weapons Total	-563,580	-152,255	23,585	3,400,000,000
Screens Total	-105,900	-375	340	78,000,000
Environ Total	-74,740	-33,330	53,530	1,272,600,000
Power Plant Total	900,000	-100,000	300,000	20,000,000,000
Fuel Purification	-928.125	-46,406.25	92,812.5	25,987,500
Controls Total	-61	-1,454	947	189,762,000
Accommo Total	-0.908	-12,258	908	31,360,000
Net Total so far...	48,745	400,659	678,780	40,994,105,000

THE FUEL AND MISCELLANEOUS SECTION

Remember the 0.00625 figure from above, which included both fuel consumption for one unit of power plant and space for equivalent fuel purification equipment? We will use that figure again to estimate how long the volume of fuel we have will last, although we will just call it "fuel capacity" for simplicity in this discussion.

First, we compute 0.00625 x 100,000 (volume of power plant) to get 625 kiloliters of fuel capacity needed per hour.

Dividing 400,000 (we will just approximate the remaining volume of 400,659 and allow ourselves a little room) by 625 gives us 640 hours of fuel capacity available, or about 26 days. Not quite 30, but close enough. If you can get within 80% of the desired 30 days, consider that you've succeeded.

Now that we're done with all of our estimates, let's allocate space for the fuel, and then install the fuel tanks. To figure out how much of the 400,000 is fuel, we just reverse out our fuel purification factor of 1.25 by dividing: 400,000/ 1.25 = 320,000 kiloliters of fuel tankage. From this, we can compute the actual size of our remaining fuel purification equipment:

	Power	*Vol*	*Weight*	*Price*
Fuel Tankage	—	-320,000	—	—
Fuel Purification(Jump)	-928.125	-46,406.25	92,812.5	25,987,500
Fuel Purification(PwrPlnt)	0.005	0.25	0.5	140
320,000 units	-1,600	-80,000	160,000	70,787,556
Fuel Scoops	—	—	—	75,750,000
Fuel & Misc Total	-2,528	-446,406	252,813	146,537,556

Notice we also installed fuel scoops. Our net totals are:

	Power	*Vol*	*Weight*	*Price*
	0	1,010,000	69,300	1,766,160,000
Locomotion Total	-105,000	-243,000	126,750	9,150,016,000
Communication Total	-0.140	-0.280	0.140	1,160,000
Sensors Total	-1,012	-20,207	10,102	5,053,810,000
Weapons Total	-563,580	-152,255	23,585	3,400,000,000
Screens Total	-105,900	-375	340	78,000,000

Environ Total	-74,740	-33,330	53,530	1,272,600,000
Power Plant Total	900,000	-100,000	300,000	20,000,000,000
Controls Total	-61	-1,454	947	189,762,000
Accommo Total	-0.908	-12,258	908	31,360,000
Fuel & Misc Total	-2,528	-446,406	252,813	146,537,556
Net Total so far...	47,178	715	838,275	41,089,405,556

We have just one last thing: cargo space. The original *Regal* specification text in *TCS* says no cargo space. We end up with just 715 kiloliters left to the crew. Close enough, I'd say.

Battlecruiser, *Regal* Class

CraftID: Battlecruiser, Type BC, TL 14, MCr41,590.86 (discounted)

Hull: 67,333/168,333, Disp=75,000, Config=1SL, Armor=40G,
Unloaded=838,275 tons, Loaded= 873,668 tons

Power: 12,378/24,756, Fusion=900,000Mw, Duration=26

Loco: 1350/2700, Maneuver=2; 2475/4950, Jump=4, NOE=180kph, Cruise=1,590kph, Top=2,120kph, Agility=4

Commo: Radio=Systemx2, LaserCom=Systemx2, MaserCom=Systemx2

Sensors: EMMask, PassiveEMS=Interstellar, ActiveEMS=FarOrbit, Densitometer=High, Neutrino=10kw, EMSJammer= FarOrbit , ActObjScan=Rout, ActObjPin=Rout, PasObjScan=Rout, PasObjpin=Rout, PasEngScan=Rout, PasEngPin=Simp

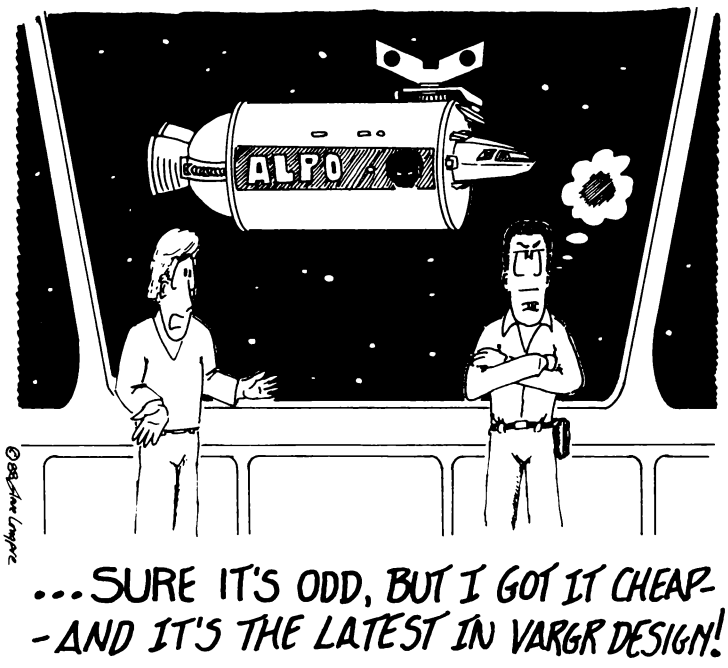
Off: MesonGun=S 0 0,
Batt 1
Bear 1
ParticleAccel=0 9 0, FusionGun=x 8 0
Bear 10 Bear 5
Bear 8 Bear 4
BeamLaser=x 0 9, Missiles= x 0 7
Bear 10 Bear 26
Bear 8 Bear 20

Def: DefDM=+7, MesonScrn=6, NuclearDamper=6
Repulsors=x 8 0, Sandcasters= x 0 9
Bear 5 Bear 10
Bear 4 Bear 8

Control: Computer=8fibx3, Panel=holographic linkx30,008, Special=large Holodisplayx10, Environ=basic env, basic ls, extend ls, grav plates,
inertial comp; Electronic Circuit Protection

Accomm: Crew=77x5 (Bridge=18, Engineering=108, Maintenance=7, Gunnery=60, Ships Troops=105, Command=49,Stewards=12, Medical=25), FrozenWatch=88x5(440), Staterooms=234, LowBerths=440

Other: Fuel=505,625kliters, PurificationPlant, Scoops, ObjSize=Large, EMLevel=Moderate



CRAFT DESIGN ERRATA

Since we are presenting an example of starship design in this issue, we felt it important that we all use the design system as it was intended to be used. To that end, we have included the latest **MegaTraveller** errata for the craft design section of the *Referee's Manual.* Those of you with the second edition will find many (but not all) of these errors already corrected. This errata is current as of June 15, 1988.

Page 62, Step 3 (correction): The Vehicle Chassis Table weight entry for UCP 0.037 is incorrect. It should be 0.050, not 0.075. The price column on the Small Craft Hull Table is in thousands of credits.

Page 63, Step 5 (correction and clarification): Configuration 1 should be labeled Needle/Wedge. The Airframe Column for Configuration 6, Dome/Disk should be x3.0, not x0.5. The Price Mod column for Configuration 7, Irregular should be x 0.5 not x.05.

Here are the definitions for the various streamlined configurations:

Unstreamlined: No attempt has been made to streamline the hull. Many protrusions and irregularities exist which significantly increase the vessel's drag, making it difficult or impossible to operate the craft in an atmosphere at any high rate of speed.

Streamlined: Various cowlings and farings have been added to the hull to streamline it for operation in an atmosphere, although the streamlining is less than that provided by an airframe. This configuration is equivalent to the "partially streamlined" configuration found in *High Guard.*

Airframe: The hull has been designed for high performance in an atmosphere. In order to achieve such performance, exterior design has been a priority. This configuration is equivalent to the "streamlined" configuration found in *High Guard.*

Page 63, Step 6 (clarification): The armor value *mass factor* is in fact the armor value *mod* (refers to the Mod column on the Armor Table in step 9).

Page 64, Step 11 (correction): The second and third sentences should read: If the vehicle has a chassis UCP of 0.2 or less, it cannot be enclosed; occupants must ride on its outside. If the chassis UCP is more than 0.2, the vehicle is enclosed unless selected otherwise.

Page 64, Step 1 (corrections and clarifications): The table heading is misleading. The Power Out, Weight, and Price is *per kiloliter* of volume; thus the Power Out, Weight, and Price of each table entry is for 1 kiloliter of power plant volume. The volume column should be labeled *Minimum Volume,* this is the smallest volume to which the power plant may be built.

The tech level 12 Fusion Power Plant Kl/Hour entry should be 0.003, not 0.005 as shown.

The tech level 17 Antimatter Power Plant Kl/year entry should be 250.0, not 25.0 as shown.

Also, further testing of vehicle designs using the hydrocarbon fueled power plants has revealed that they are too inefficient as given. More acceptable values are given below:

		---------*Per Kiloliter*----------			*Minimum*		
TL	*Description*	*Power Out*	*Weight*	*Price*	*Volume*	*Kl/Hr*	*Fuel*
5	Internal Combustion	0.25	1	1,000	.005	.030	Hydrocarbons
6	Improved Internal Comb	0.40	1	2,000	.001	.025	Hydrocarbons
7	Gas Turbine	0.60	1	5,000	.005	.040	Hydrocarbons
8	MHD Turbine	0.80	1	10,000	.001	.035	Hydrocarbons

Antimatter power plants use *fuel pods*: a special self-contained fuel package that consists of a measured quantity of antimatter enclosed in a strong artificial gravity "bottle". The bottle's gravity fields are maintained by an array of superbatteries. Fuel pods are the heart of an antimatter power plant, and they typically provide fuel for up to a year before needing replaced. Fuel pods also have a minimum size to which they may be built:

TL	*Minimum Volume (Kl)*
17	2.000
18	0.800
19	0.200
20	0.050
21	0.005

Antimatter power plant output increases dramatically as the ability to safely contain a progressively larger annihilation mass occurs. This means that a given fuel pod is "burned up" at a progressively faster rate, however.

On the Fuel Cells table, the headings for the two rightmost columns should be: *Price*, and *Fuel Liters/Hour.*

Page 64, Step 2 (correction): On the Small Plants Efficiency Decrease table, the Volume column entry for Turbines is missing. It should be 0.10-.

Page 65, Step 5 (clarifcation): An anti-grav unit requires a gravity well to push against, so an anti-grav maneuver drive is less efficient at 10 diameters and beyond. The effective maneuver number of the craft drops by 50% at 10 diameters and beyond; for example, a maneuver-2 drive drops to a maneuver-1, and a maneuver-1 drops to a maneuver-0.5. Thruster units do not suffer these effects.

Page 66, Step 7 (correction): The minimum volume percentages should be: *Wheels:* 1.5%, *Tracks:* 2.0%. Greater volume reduces ground pressure, which in turn increases off-road speed.

Page 66, Step 9 (correction): The Avionics table headings should be: Volume, Weight, and Power—not Power, Volume, and Weight.

Page 67, Step 4 (correction): The price note should say: If TL8, x2. The tech level 16 column should read: —, — , 0.001, *0.002*, *0.004*, 0.006, 0.010. The tech level 17 column should read: —, — , 0.001, *0.001*, 0.003, 0.005, 0.010.

Page 67, Step 5 (correction): The price note should say: If TL8, x2. The entry for a tech level 8 V. Distant maser communicator should be 0.032, not 0.32. The tech level 16 column should read: —, 0.002, 0.003, *0.004*, *0.007*, *0.010*, 0.040.

Page 68, Step 2 (correction): The entry for a tech level 9 Continental radio jammer should be 0.0026, not 0.002. The tech level 10 entry on the same line (next column over) should be 0.002, not 0.0026.

Page 68, Step 3 (correction): The prices for Radar should be: Weight x Cr1,000,000. All-weather Radar is Weight x Cr1,500,000.

Page 68, Step 5 (clarification): An EMM package does not mask the craft's emissions when it uses active electromagnetic sensors. Also, an EMM package does not mask the craft from

CRAFT DESIGN ERRATA

active sensor scans conducted by *other* craft.

Page 68, Step 7 (correction): The weights for tech level 10 and 11 regional Ladars are incorrect. They should be TL10, 0.016, and TL11, 0.008.

Page 70, Step 15 (correction): The power requirement for the EMS Active Array should be: Weight in tons x 10.

Page 71, Step 3 (correction): The price column and hardpoints column for the Meson Guns table are incorrect. The correct values are:

MESON GUNS (SPINAL MOUNT)

UCP	*MCr*	*Hard-Points*
A	10,000	50
B	12,000	80
C	3,000	20
D	5,000	50
E	800	10
F	1,000	20
G	400	10
H	600	20
J	400	10
K	10,000	80
L	3,000	50
M	800	40
N	600	20
P	5,000	80
Q	1,000	70
R	800	50
S	2,000	80
T	1,000	70
U	2,000	80
V	1,200	70
W	1,000	50
X	2,000	80
Y	1,200	70
Z	800	50

Page 72, Step 6 (correction): The hardpoints for bays should be 10, not 100.

Page 72, Step 8 (correction): The TL 9 column should be empty for the Plasma Gun, Fusion Gun, and Repulsor. The prices for these weapons are missing—the correct values are: Plasma Gun, MCr5; Fusion Gun, MCr8; and Repulsor, MCr6. ThePlasma and Fusion Gun Bays are incorrect. They should be:

50 TON BAYS

TL	*Type*	*Power*	*Wt*	*MCr*	*UCP at Tech Level* 10	11	12	13	14	15	16	17	18	19	20	21
10	Plasma Gun	2,500	35	5	4	5	6	—	—	—	—	—	—	—	—	—
12	Fusion Gun	5,000	35	8	—	—	7	8	9	A	B	C	D	E	F	—

Page 74, Step 17 (clarification): Rate of fire applies in personal combat, not in space combat. Each space combat round represents 20 minutes of elapsed time—rate of fire is inconsequential in this case.

Page 74, Step 18 (clarification): 100-ton bays hold 100 missiles; 50-ton bays hold 50 missiles. The battery-round for one 100-ton missile bay is 100 missiles; The battery-round for one 50-ton missile bay is 50 missiles. ROF applies only during personal combat: in space combat, use the battery-round.

Page 75, Step 20 (clarification): The Indirect Fire range lists a range band *and* a number in parentheses. The number in parentheses is the actual range in kilometers. Where the range band indicates a general range band for "effect", the exact range in kilometers is much more accurate. We recommend you use either the range band or the exact range in kilometers in a given combat session—don't use both. Mixing and matching range methods can be confusing.

Page 77, Step 22 (correction): The indirect fire range in kilometers for a 10cm bore is 20, not 22. Likewise, the indirect fire range in kilometers for a 24cm bore is 60, not 90.

Page 79, Step 33 (correction): Change the last sentence to read: If a vehicle is open-topped or smaller than *a UCP of 0.2*, the weapon mount must be Fixed or Open; Turrets or Cupolas are not allowed.

Page 80, Step 2 (clarification): The price of Nuclear Dampers is given in MCr.

Page 80, Step 3 (correction): The Power column entries for the Meson Screens and optimized Meson Screen Packs are too high by a factor of 10. The correct entries for the Meson Screens are: UCP 1, 0.015; UCP 2, 0.030; UCP 3, 0.045; UCP 4, 0.060; UCP 5, 0.075; UCP 6, 0.090; UCP 7, 0.105; UCP 8, 0.120; UCP 9, 0.135; UCP A, 0.150; UCP B, 0.165; UCP C, 0.180; UCP D, 0.195; UCP E, 0.210; UCP F, 0.225. The correct entries for the optimized Meson Screen Packs are: TL16, 0.135; TL17, 0.100; TL18, 0.065; TL19, 0.035; TL20, 0.015; TL21, 0.010.

The Meson Screen UCP 9 line is also an incorrect duplication of the UCP 8 line. The correct entry should be: UCP 9, TL 15, Power .135, Volume 540, Wt 490, and Price MCr60.

Page 80, Step 6 (clarification): The price of White Globes is given in MCr.

Page 81, Step 1 (correction): The volume and weight of Basic Life Support is incorrect. It should be 0.005, not 0.050.

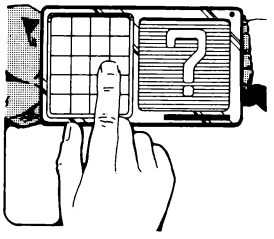
Page 81, Step 3 (clarification): The price of Computers is given in MCr.

Page 82, Step 7 (corrections and clarifications): On the Engineering Crew formula (Ce): L=Locomotion CP. On the Maintenance Crew formula (Cm): A=Hull volume divided by 100, H=Hull CP.

Add to the gunners formula: If Cg computed above exceeds 50, then recompute Cg instead as: Cg = 50 + (Cg/50) (round fractions up).

Page 82, Step 8 (correction): Divide the crew into one even segment per 13,500 kiloliters of hull; treat a fractional hull segment as a full segment. For example, the 45-person crew of a 16,200 kiloliter ship divides into two 23-person segments.

Page 83, Step 3 (clarification): The listed price of the fuel purification plants is in credits.•



Traveller Q&A

OFFICIAL ANSWERS TO YOUR QUESTIONS

Traveller Q&A provides answers to questions from readers on various aspects of **Traveller**, **MegaTraveller**, and **2300AD**. If you have a question you would like to have answered, send it to: Digest Group Publications, Q&A, 8979 Mandan Ct., Boise, ID 83709. We will publish the best of these questions and answers in this column.

(Editor's Note: We are finally beginning to receive questions on 2300AD. However, as many of you may know, GDW is about to publish a brand new edition of the 2300AD rules which incorporate many clarifications and enhancements to the game. All of the questions we have received so far will be answered by the new rules set. Once the new rules set has been released, we will begin running questions and answers for 2300AD, perhaps even taking answers from the new rules for the benefit of those who don't yet have the new set.)

Every single answer published in this column is seen and approved by Marc W. Miller, the leading designer of **Traveller** and **2300AD**. We want to stress to our readers that anything appearing in **Traveller Q&A** is *official* unless explicitly stated to be a variant.

The power requirements for the environment section of a craft seem awfully high. Why is that? — J. F.

I can see how you might think the power requirements of the environment section are high, but I believe the power draw is actually within reason. Let me tell you why.

As an abundant supply of enormous amounts of power becomes available, an interesting phenomenon known as Parkinson's Law will likely occur. Quite simply, Parkinson's Law says a thing expands to fill the resources available to it.

As an example of this principle, compare personal computers and the memory requirements of software in recent years. When microcomputers were first invented in the late 1970's, a 7 kilobyte program (also called a "k", or about 1,000 characters) was the reasonable norm — to design a 70k program was terribly wasteful (if the memory was available), and designing a 700k program was unthinkable! But now, on the Macintoshes we use here in the office, a 700k program is becoming the typical size of a program that can do useful things (for example, Apple's *Hypercard* takes 720k). A 7k program seems ridiculously tiny. What happened? Abundant memory, that's what. I believe abundant fusion power will have the same effect on the power needs of devices.

The typical home in 1988 uses between 1,000 and 1,500 kw-hours per month — or about 2 kilowatts (kw) per hour. Peaks and lows make this vary, but the overall average per hour is 2 kw (that's equivalent to burning twenty 100 watt light bulbs for an hour).

The life-support power draw for a 100-ton displacement vessel comes out to around 100 Megawatts (Mw) per hour, or about 0.4 of an energy point. Without grav plates or inertial compensators, the power draw drops to about 8 Mw, or about 0.03 of an energy point. Well over 90% of the life-support power draw is the grav plates/inertial compensator system. Ah, nothing like that cheap power. Even so, 8 Mw per hour would power about 4,000 houses. Still seems quite high, doesn't it? But then so did 700k programs to folks with only 7k of memory in their computers. — *Joe D. Fugate Sr.*

The tactical pool rule seems too liberal. For example, consider a party which has enough tactical skill levels between them that the tactical pool has over 8 points in it. During combat, is it really reasonable for a character who has only a handgun skill level of 0 to draw from the tactical points pool and get a +8 on his "to hit" task? That makes him a crack shot, which seems all wrong to me. — M. M.

Any rule can be abused, and this one is no exception. The overall effect on the entire combat session is what's wanted, even if that means some individual attacks on the tactical level may seem "too good to be true."

The example you cited is an exceptional case, and don't forget that the rest of the group must agree to let the green guy use up all their tactics points for the round, rather than keep some for themselves. But then again, who's to say the guys with tactics skill didn't say to the green guy: "Now brace your arms on this rock, and wait until he stops moving for a moment, and aim for the chest..." One of the continuing challenges in roleplaying games is how to give the players skills that they themselves do not possess, but that their characters do have. Personally, I feel the tactics points pool succeeds at this in a way few other rules do.

But if things do get out of hand, just add some common sense stipulations to the use of the tactics point pool. Here are some examples:

- The individual who wants to use the tactics points must be in communication with the rest of the group. He cannot be off on his own, out of site, or without a communicator.
- Limit the total number of tactics points that can be drawn at any one time to the level of the highest leadership skill in the group. It's always good to look for opportunities to make leader skill important as well. — *Joe D. Fugate Sr.*

Your new column "Traveller Arsenal" seems inappropriate to me. Isn't it silly to show what a certain weapon looks like, when there are most certainly hundreds of different variations to be found on the 11,000 worlds of the Imperium? Besides, my players know what their weapons look like — we don't need any "official" illustrations to conflict with our own ideas. — M. M.

I understand that it might seem a little presumptuous to hold up one illustration and claim it's the only possible design for a particular piece of equipment — but this was never the intent of "Traveller Arsenal". As you state, the Imperium is a very, very big place, where the same type of

weapon is available from several manufacturers in almost every sector — and of course each model differs from the next.

Consider the variety of assualt rifles here on Earth today in the 1980's (the M16, the AK-47, and the FA-MAS to name just a few). All look very different while sharing the same principles and function.

The "Traveller Arsenal" designs are not intended to deny your original ideas of what the hardware may look like, but rather to give you an overview of how that model of the weapon may appear from one of the many arms manufacturers in the **MegaTraveller** Imperium. These illustrations are intended to supplement your imagination — nothing in the *Travellers' Digest* should ever force you to sacrifice your own imagination. — *Karl JM. Martin.*

I was wondering if it would be possible to publish a set of extra skill die roll numbers that could easily be added to the old four-year character generation tables in the alien modules? That would keep them from becoming outdated. — M. W.

What you ask is at best a "quick and dirty" fix, and not really a good answer to integrating the major races properly into **MegaTraveller**. A complete book on the subject (a la *Rebellion Sourcebook*) is preferred by both GDW and us. How's that for a copout answer?

Seriously, this has two advantages. First, it allows us to do the new character generation systems for the major races right (with some new cascade skill groups), and would even permit new character generation "twists" to further enhance the major races' alien nature. Second, it allows us to bring you up to date on what's happening with the alien races in the shattered Imperium era. As you can see, such a book wouldn't replace your original alien modules, but rather would be a valuable supplement to them.

For those who weren't able to get the original alien modules, there would be enough of the basic information on the major races in the new **MegaTraveller** aliens book to give those folks what they need, although the original alien modules would still have the most detail.

Rest assured, such a book is in the planning stages right now, but it's much too early to estimate a publication date. In the meantime, feel free to make the modifications you suggest.— *Joe D. Fugate Sr.*

Instead of using anagathics, is it possible to use fast drug in 1/10 doses during the time spent in jumpspace to keep yourself from aging? — M. W.

That's an interesting notion. I don't think it will work, but even if it did, why not save yourself several thousand credits and travel low berth? The effect is the same and it's a lot cheaper than travelling middle passage and ingesting watered down doses of fast drug.

Taking a 1/10 dose of fast drug in an attempt to drop the body's matabolism down to 6 to 1 is kind of like taking 1/2 of an antihistamine tablet to clear out just one nostril. Partial doses often don't do much of anything.

The notion that a metabolism-altering technique is the same as anagathics is most deceptive, for you are not really prolonging your life — you are simply cheating the calendar. The difference is subtle but very significant.

For example, with a hypothetical 2 to 1 metabolism-slowing technique, you may live 100 years according to the calendar, but you gain only fifty years of experience. The calendar moves twice as fast, but it's still the same 50 years of life from your point of view. Actually, the effect is more akin to a bizarre form of "time travel" with the world around you appearing to move at twice its normal rate.

With anagathics you get *more* actual years of life. If you live to 100 years of age, you have lived out all 100 years, complete with the 100 years of experience — *twice* the experience level of the guy who thought he was so clever by slowing down his metabolism.

Personally, I'd take the anagathics. — *Joe D. Fugate Sr.*

What does a "letter of marque" do for a pirate character? — M. W.

The answer is simple, just check your dictionary. Here's the entry from *The American Heritage Dictionary:* "1. A document issued by a nation allowing a private citizen to seize citizens or goods of another nation. 2. A document issued by a nation allowing a private citizen to equip a ship with arms in order to attack enemy ships."

Essentially, a letter of marque legalizes the pirate's pillaging and plundering, as long as it's done against the enemy. And as an added bonus, there may be government funds available (from the one issuing the letter) to equip the pirate band.— *Joe D. Fugate Sr.*

Is it possible for characters to get tested and trained for psionics while still in their career during character generation? — M. W.

This question touches on the area of the rules that most players can't seem to resist tinkering with: character generation. For insight into the possible answer, take a look again at page 17 of the *Players' Manual*, in the third paragraph of the retirement section. It states:

"When a character retires from his or her present career and musters out, a significant career shift has occurred. Character generation represents experience in a *prior career.* If a character being generated wants to change careers, he musters out into the game. (Because **Traveller** rules allow for continued character improvement after character generation, no provision is made for changing careers *during* character generation.)"

I believe the same philosophy applies with psionics: "If a character being generated wants to undergo training in psionics, he musters out into the game." After all, a lot of the fun with psionics is the search for a Psionics Institute.

Still, there may be times that the referee wants to generate a character who has undergone psionics training in the past. Or, if you just think it would be fun to run a player character through psionics training during character generation, then by all means do so.

However, don't forget that psionics are frowned upon in the Imperium, so if you do want to run a character through psionics training while he's being generated, I'd suggest adding a -2 DM to his survival roll that term. This represents the increased risk involved in playing around with psionics in a society that dislikes and even fears such "hocus pocus." — *Joe D. Fugate Sr.*

The History of the Terran Occupation Force

—by David C. Nilsen

The Imperial Marine occupation of Terra began on 105-1002 when troops of the 4217th Imperial Marine Regiment raised their colors over the cratered tarmac of the La Grange Starport. Though the invasion of Terra was only a few days old and would grind on for many long months, the capture of La Grange established the Marine presence that has continued unbroken to this day.

From their initial lodgments in Australia, North America, Europe, and South Asia, the Marines expanded their operations, serving as spearheads for Imperial offensives, and were never driven out of their "beachheads". Paraphrasing Archimedes and echoing many previous Imperial leaders, Emperor Gavin remarked, "I can move the universe if I have a regiment of Marines to secure the fulcrum." Long renowned for their tenacity in battle, the Marines have earned the right to garrison Terra as the steadfast symbol of irresistable Imperial sovereignty.

The Imperial Marines' Terran occupation is currently centered around three main bases headquartered at Terra's three starports, La Grange, Paulo, and AECO. Starport Paulo, in the North American Southwest, was originally named Starport Phoenix, but as this was also the name of the purported Solomani underground resistance movement, so was renamed in 1140 for the reigning Emperor Paulo III.

Each starport is a reinforced Marine regiment base, also housing other "visiting" units. While these forces naturally cooperate in all operations, each base has an area of primary responsibility.

For Operations Base (OB) Paulo, this includes all of the Americas from 30°W longitude to 170°W longitude. OB La Grange in western Australia is responsible for 170°W to 40°E at all latitudes, and to 60°E south of 60°N latitude. OB AECO, in North Africa, covers the remaining area; from 30°W to 60°E between the North and South Poles, and east to 140°E longitude above the 60th parallel.

Each base keeps one-third of its forces, a battalion strength task force, on full alert status "on the pad" at all times. The grav mobility of these forces allows them to respond to any eventuality. These bases also have several platoon- to company-sized patrols from their stand-by task force out at any one time, "showing the flag" among the populace. The remaining forces are on stand-down status for training, community activity, or leave purposes.

In addition, two or more companies are deployed to the Imperial Navy squadron in orbit and can be dropped almost instantly to any trouble spot. These Orbital Response Forces (ORF) consist of at least one drop infantry company and one company of the 66th MArCav Regiment.

There have been no legitimate anti-Imperial acts on Terra for over twenty years. The first decades following the invasion saw dozens of terrorist bombings, assassinations, and even overt paramilitary acts against the Imperial Occupation Forces, but these came to an end following the Phoenix Eradication of 1040 to 1045. Isolated acts of resistance from surviving guerrilla units were largely ineffective after the compromising of their command structure, and these petered out by 1050. Small groups have appeared in the years since, such as the New Phoenix Movement and the People's Front for the Liberation of Terra, but these have all been small isolated causes that were easily eliminated.

The original name of the forces was the "Terran Occupation Force", but ... today the marines bear only the title "TERRA" on the right shoulder of their uniforms.

This lessening of native resistance has been accompanied by comparable softening of Imperial occupation policies. The original name of the forces was the "Terran Occupation Force", but as time went by, Imperial commanders moved to increase friendly ties with the Terrans and thereby win their good will.

Under this pacification program, "Terran Occupation Force" was deemed too offensive a name, and was replaced first by "Terran Marine Residual Force" (TMRF), then by "Terran Garrison", with appropriate changes to the markings on the patrolling Marine vehicles and uniforms. Today the marines bear only the title "TERRA" on the right shoulder of their uniforms.

The official name of the Marine force in Imperial circles is the Imperial Marine Garrison, Terra (IMGT). However, this title is little known and even less used on Terra, where the occupying troops are known to both Terran and Imperial by the innocuous "Marine forces on Terra."

While the Imperial Marine forces were undergoing their name changes, their mission as garrison was beginning to change as well. Even in 1050 Terra still had difficulties with food, water, and power distribution, as well as inadequately repaired housing and public facilities.

The Marines became increasingly involved in public relief programs, for which their transport and combat engineering assets proved invaluable. Indeed, at the request of the then-TMRF commander, the 411th Marine Combat Engineer

Brigade was deployed to Terra from 1048 to 1057 and performed feats of civil engineering in areas as far apart as Nepal, the Mississippi Basin, the Strait of Gibralter, and Papeete.

Such activities paid inestimable dividends to the Marine occupation, and community relations, initially rather cold, became quite warm. In 1065 the first "Marine Cup" championship soccer game was played. The winner of the Terran World Cup would play an exhibition game against the All-Marine All-Star Team with proceeds going to charity. As of this year, the series is in favor of Terra 25 games to 16, but the Marines, in addition to winning the very first cup, have put together a winning streak going back to 1101.

Terra ... is the only capital of a rival interstellar government held by Imperial troops...

The year 1068 saw the revocation of the Marines' non-fraternization regulations, with the first Marine-Terran wedding taking place within three months. The year 1076 saw Marine officers being allowed to live off-post in Terran communities for the first time, followed by enlisted personnel in 1079.

Today the Terran occupation is considered a rather pleasant tour of duty in the Marines. Unlike most Marine regiments, which stay together as an almost tribal unit and keep many of their personnel from enlistment to retirement, the Terran occupation regiments remain in place and do not rotate out as entire units. This is done for historical purposes; three of the regiments in the IMGT are the same units that led the invasion 103 years ago.

While these are the same units only on paper, it is of symbolic importance to the Marines that the same units remain at the site of their great victory. Thus personnel are rotated through the Terran forces on tours, each lasting a year. For officers the tour can be extended only once for an additional year, but enlisted tours can be extended as many times as desired.

Terra, now friendly, is a civilized and highly developed world, offering many attractions to those serving there. It is also the only capital of a rival interstellar government held by Imperial troops, and thus is a high prestige posting. All Imperial troops who have served over a year on Terra are entitled to wear the Terran Occupation Badge on the breast of their dress uniforms for the remainder of their careers.

Law enforcement on Terra has long since been returned to native police units, except in the rare cases of possible sedition or terrorism, when Terran investigators are accompanied by members of the Marine Military Police units. Occasionally a murder or act of arson will be claimed as an act of anti-Imperial terrorism, but investigation of the crime almost always shows it to be camouflage for a more prosaic criminal act, such as domestic violence, robbery, or urban gang killings.

Marine patrols are frequent and highly visible, but are never conducted according to regular schedules or routes. The typical patrol consists of a column of six or more air/rafts with possibly an APC or two. Grav tanks are rare on these patrols, deemed too aggressive, and counter-productive to the friendly community atmosphere that has been so carefully established. This is much to the chagrin of "armor spotters", civilian military enthusiasts who attend the Marine open houses and collect information and photographs, much as train, aircraft, and truck spotters did in Terra's past.

Similarly, Marine patrols have not worn their battle dress since 1083, as it, like grav tanks, was deemed too provocative for public appearance. Troops on patrol are dressed instead in standard issue combat environment suits, neck-to-toe ballistic cloth protection, in various camouflage patterns, depending upon local conditions. Although comparatively lightly armed and armored, these patrols are carefully monitored from the Operations Bases, and are watched over by the ORF, which can drop reinforcements in mere moments. These patrols often stop at such sites as orphanages and youth centers as part of their community relations mission, and any town that suffers a natural disaster (although these are quite rare given Terra's high technology) usually finds that a Marine disaster relief column is the very first help to arrive.

The Solomani Movement is alive on Terra, in the form of the Solomani Party, whose moderate elements are legal in the Imperium. Its methods are non-confrontational and consist of promoting Solomani Independence via political means. The Terran faction of the party has gone so far as to refer to the Marines as "our brothers who have helped us to create a more prosperous life for the Solomani people here on Terra". The Marines have rather little to do with Solomani political intriguing; at most they will help with crowd security for large public rallies or parades. It is the domain of Imperial Naval Intelligence to keep tabs on possibly violent elements of the Solomani Party and to root and neutralize members of Solomani Security who have infiltrated the Teran party. SolSec members are known to be quite capable of violence, sabotage, and terror, but as the Marines have no arm that matches the capability of INI, they leave the espionage to the Naval Intelligence operatives. Small military police units have been called in by INI to help with certain anti-SolSec operations, but these occasions are rare.

The Imperium maintains large forces for the security of Terra. The Marine units permanently assigned to Terran duties add up to the equivalent of six full brigades, and this number does not include various visiting units, special-purpose battalion-sized outfits rotated through on varying assignments. Nor does this include Fleet Marine assets which are always present. The Imperial Navy Squadron present in the Sol system is required always to consist of at least one battle squadron and one or more cruiser squadrons in addition to fleet carriers and auxiliaries. A CruRon

generally carries the equivalent of a battalion or two of ship's troops, while a BatRon can carry a brigade or as much as a division. These troops would deploy from orbit if needed, but are not considered part of the permanent garrison.

The units assigned to Terra are the 2666th, 4217th, 4545th, 5201st, and 5203rd Marine Regiments, and the 66th Marine Armored Cavalry Regiment. The first three units named took part in the invasion in 1002, and have remained on Terra ever since. Additional IMGT units are attached to the Marine regiments to augment them to brigade strength. These include independent battalions and companies of heavy artillery, grav tank, maintenance/support, enigineer, Marine Corps of Military Police (MCMP), as well as medical, finance, judge advocate, and civil affairs assets.

The five Marine regiments have a strength of approximately 3,500 troops each, organized as 3 force command headquarters, 9 line Marine companies, 5 meson gun batteries, 2 lift cavalry companies, 1 grav tank company, and 1 commando company (see *Journal of the Travellers' Aid Society* #12 for further details).

The MArCav Regiment (for Marine armored cavalry, to distinguish it from predominately-air/raft-equipped lift cavalry units) is organized as a regimental headquarters group, three armored cavalry battalions each consisting of a headquarters group with headquarters company and three armored cavalry companies, and a combat support battalion containing an artillery and fire support battery, electronic warfare, engineering, psy ops, and maintenance units, as well as the big battlefield recovery sleds. The regiment is intended to be self-sustaining, depending upon its support battalion as a forward base while the cavalry companies, each with eight grav tanks, five APCs, and six air/rafts, conduct scouting, harrassing, and screening operations alone or in conjunction with allied units. With a strength of about 1,700 personnel, the MArCav regiment is light but hard-hitting.

The five Marine regiments and their attached battalions are deployed one in each of the three starport/Operations Bases, one in the ORF, and one, broken into task forces, on a roving deployment to various major urban areas. The 66th MArCav deploys one of its battalions to each of the OBs, but maintains one cav company in the ORF at all times. The IMGT consists of some 28,000 Marines equipped to TL 15, with complete system, orbital, and air superiority.

In next issue, we'll complete our series on the Marine forces on Terra with a description of Marine uniforms and rank insignia.•

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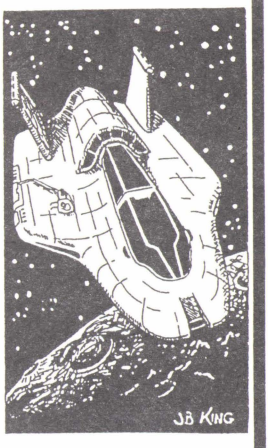

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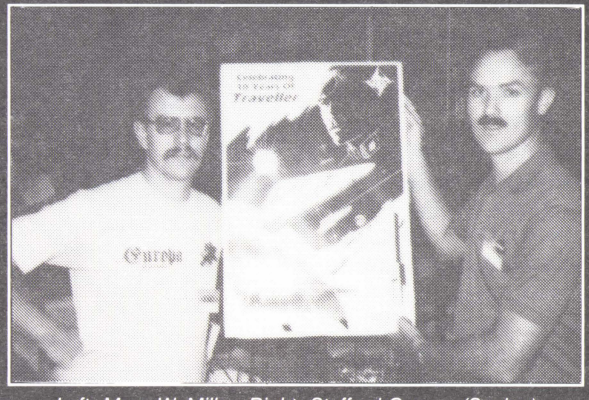

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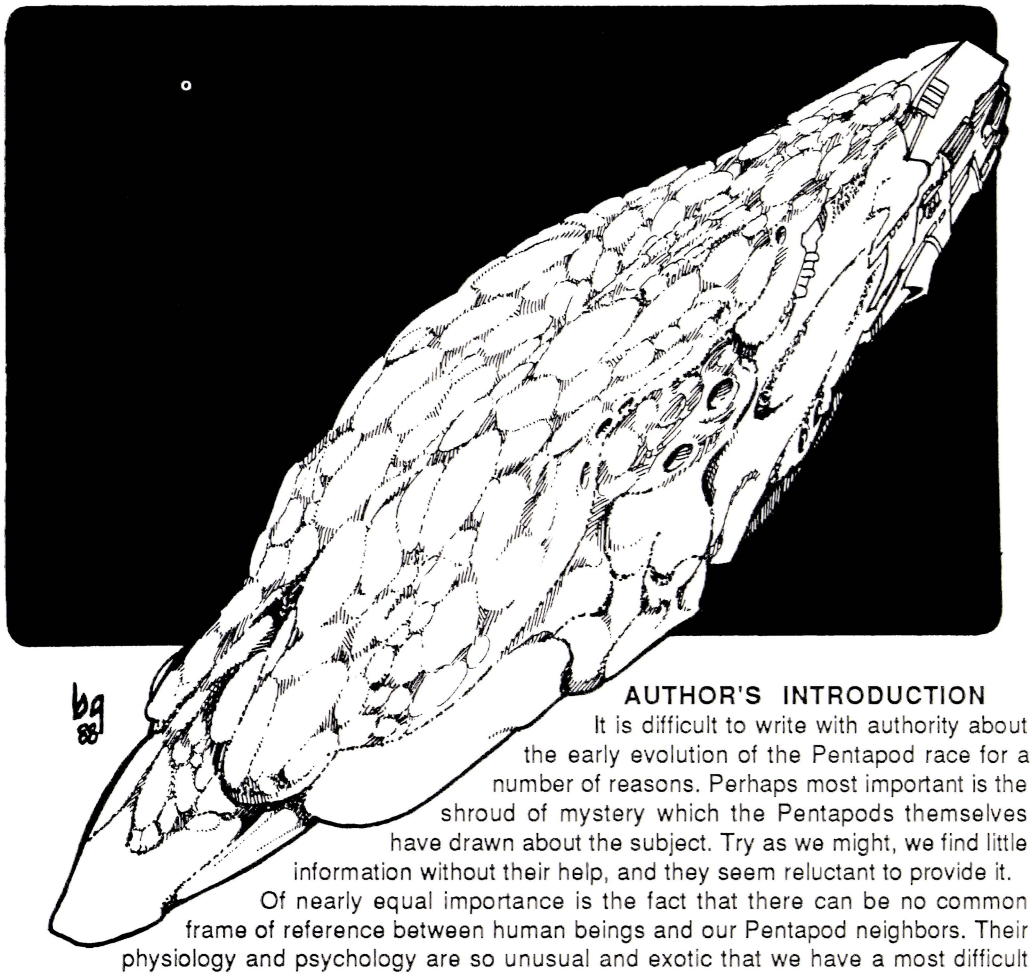
PENTAPOD SPACECRAFT

Excerpted from *Pentapod Vererbungslehre* (published by the Astronomischen Rechen-Institut Verlag, Heidelberg, Germany)—by Herr Professor Berhardt Gerber
English Translation by William W. Connors

CONTRASTS

Because the Pentapod race has developed a technology which is based on organics instead of electromechanical systems like our own, the solutions which they have attained to various engineering problems have, of course, been different from those discovered by human technicians. This being the case, it is often difficult for humans to understand the functioning of their various devices. Nowhere, however, is the contrast between human and Pentapod technology more pronounced than in their starships.

In order to begin any study of Pentapod spacecraft, it is vital that the reader understand one point: Pentapod starships are fully self-aware living beings who have been genetically engineered to be able to travel between the stars.



AUTHOR'S INTRODUCTION

It is difficult to write with authority about the early evolution of the Pentapod race for a number of reasons. Perhaps most important is the shroud of mystery which the Pentapods themselves have drawn about the subject. Try as we might, we find little information without their help, and they seem reluctant to provide it.

Of nearly equal importance is the fact that there can be no common frame of reference between human beings and our Pentapod neighbors. Their physiology and psychology are so unusual and exotic that we have a most difficult time in understanding even the most basic aspect of their culture.

What follows is, at best, conjecture. It is quite possible our assumptions are as far off the mark as the early concepts of spontaneous generation were. Nonetheless, here is our best estimate of the forces which have shaped the evolution of Pentapod technology and culture.

EARLIEST EVOLUTION

Many theories have been put forth to describe the ancestors of modern day Pentapods. Some of them may be correct, all of them may be wrong, we simply do not know. What follows is my own personal opinion, which is shared by some xenobiologists and not by others.

It is certain that the Pentapod race was aquatic originally. They make no effort to conceal this and their enclave on Beta Canum Venaticorum clearly displays this facet of their evolution.

At what point in their history they began to modify themselves with basic genetic engineering is unknown. Certainly, they stumbled upon simple selective breeding far earlier than mankind did and began a program of eugenics which eventually made them what they are today. Somewhere along the way, however, they seem to have lost their individual identities and came to look upon themselves as parts of the massive biological machine that is the Pentapod race. Some have made a loose analogy to Earth hive insects or to the unusual icemice of Hermes.

SURFACE EXPLORATION

Eventually, as the Pentapods became more and more able to understand and modify their own (and other) genetic structures, they became interested in the possibility of life outside of their native oceans. They manufactured the first of their commonly known amphibious forms and ventured out of the seas.

On land they found a great assortment of living creatures the likes of which must have been undreamt of by their aquatic ancestors. As they have always done, they looked at these animals in much the same way a human being might examine a large cache of spare parts. Almost certainly, their first thoughts were something akin to "what can we make out of these?".

As they continued their conquest of the surface world, certainly creating versions of themselves that were wholly non-aquatic in nature, they began to examine the possibility of exploiting another frontier — the sky.

ATMOSPHERIC EXPLORATION

Exchanges with Pentapods on Beta Canum have revealed that their homeworld has very few flying life forms which use wings for lift. Far more common are creatures which hold themselves aloft by natural balloons filled with helium. While early would-be flyers on Earth found themselves trying to master the often tricky science of aerodynamics, the Pentapods found themselves with life forms which served as excellent models (and subjects) for aviation experiments.

Gradually, a new breed of Pentapod must have emerged. Perhaps somewhat similar to its amphibious cousins, it was able to ride the winds of the Pentapod homeworld and study a realm unlike any which the race had ever explored before. As the decades passed, they certainly became better and better fliers. Higher and higher the realm of the Pentapods spread until they found themselves hitting a wall which must have seemed impassible to them. Their wonderful balloon-Pentapods could never pass beyond the upper atmosphere to explore the hard vacuum of space.

EARLY PENTAPOD SPACECRAFT

Evidence supports the belief that the unyielding vacuum of space halted Pentapod expansion for some time. Meanwhile, however, their mastery of the genetic sciences must certainly have grown by leaps and bounds. Eventually, the Pentapods have told us, they made use of a propulsion system which existed in certain plants on the surface of their world to break through the boundary of space.

That means of propulsion, it seems certain, was solid fuel rocketry. Although the exact nature of the plants which employed it is unclear, it seems likely that they resembled the Bunyip's hat which is currently playing a major role in the passive terraforming of Kingsland in the Zeta Herculis system.

Once again, a new breed of Pentapod must have emerged from the genetic "factories". Possessed of a very hard outer shell and rigid internal bracing, these new explorers sailed aloft on a plume of fire not unlike our earliest space missions of the 1950s and 60s.

The evolution of these travellers certainly brought to the Pentapods an understanding of aerodynamics the likes of which they had never had before. Eventually, they grew Pentapods with propulsion systems similar to liquid fueled rockets. The latest evolution of these systems is still employed as thrusters on Pentapod starships and spacecraft today.

PENTAPOD EXPANSION INTO SPACE

The next step for the Pentapods seems to have been the establishment of long-period missions to the other worlds of their solar system. Like early Earth explorations of a similar nature, they made use of low-energy orbits which, although fuel efficient, took decades to run their course. Again, a new breed of Pentapod explorer was required, planned, and "constructed".

These creatures were far larger than their earlier ancestors and, like modern Pentapod spacecraft, must have sustained themselves by setting up a thermal exchanging process between their light and dark portions to generate electricity. Such systems are not uncommon among other known life forms, such as the sea stalks of Hermes or the spitzenvogel of Neubayern.

Also at this time, the Pentapods must have established at least one orbital facility above their homeworld to support future space efforts. If it followed the designs which they have employed elsewhere, the creature must have been a massive being which was self-aware. Pentapod spacecraft which sought entrance to the station would pull up to it slowly and ease themselves into contact with the outer surface. As in many spacecraft and stations currently in use by the Pentapods, this outer layer was pliable and slowly expanded to engulf the visitor. The entire process may have taken as long as an hour to complete after first contact with the hull.

STAGNATION

Once again, the Pentapods encountered a barrier which put a stop to their expansion. This time, however, it was not the almost tangible gradient between air and space, but rather the vast distances between stars. Certainly the Pentapods could have "built" versions of themselves which were long-lived enough to make such travels at slower-than-light speeds, but the cost effectiveness of such a project was certainly in doubt.

An excerpt from the Personal Log of Doctor Wolfgang Noel, senior xenobiologist aboard the AR-I survey vessel Adler, *dated April 17, 2251:*

Our studies of the object continue, but there seems to be little more we can learn about it from this distance. I have asked the captain to begin closing on it once again and he has agreed. We are to wait five more hours and, if the situation remains stable, *Adler* will move to within two kilometers of the unknown while *Rayon de Lune* remains in her current position, ready to flee the area if conditions should warrant.

Our sensors have determined that it is not only living but seemingly of a high magnitude of intelligence. There is speculation among the science crews that what we have encountered is not a spacecraft at all, but an actual sentient alien race.

If this is indeed the case, I fear we may have many text books to rewrite when (and if) *Adler* and *Rayon* return to report our findings.

BETA CANUM VENATICORUM

The Pentapods maintain an enclave on this Earth-like world to allow them better contact and relations with the various nations of Earth. For those interested in observing Pentapod starships in action, there is no better place (in human space) to observe these great travellers.

Although the craft which visit Beta Canum must pass through other human systems before reaching the frontier of Pentapod space at DM + 27 28217, they often pause long enough only to discharge the gravimetric build-up from their stutterwarp units before swinging around the star for recharging, and then quickly resuming their voyages. As can be imagined, these are far from ideal viewing conditions.

Those vessels which arrive at Beta Canum often stand in orbit for extended periods of time, and curious humans may approach them aboard travel pods operated for the convenience of tourists by the local port authority. From time to time, an individual craft may be available for examination through the Pentapod Enclave itself.

The Pentapods seemed to have reached the end of the line, as far as space travel was concerned. Unlike mankind, which exploited the mineralogical wealth of the other worlds in our system, the Pentapods saw their neighbors as fairly worthless. Without the genetic stock of other life forms to exploit, the race began to lose interest in space. Gradually, they seem to have wound down their missions to other worlds in their solar system. As each of the long term expeditions returned with a cargo of sterile samples and similar disappointing news, the Pentapod interest in space grew dimmer and dimmer.

RENAISSANCE

Shortly before the imminent final collapse of their space program, we are told, a very unusual scientific experiment paid off. Certain aspects of the Pentapod "scientific community" (a poor analogy, but the only one which I can find that fits at all) had been conducting research into a new type of technology which was based on mechanisms rather than organisms.

For several centuries, this endeavor had plodded along slowly. Results were produced which justified its continuation, but truly useful breakthroughs were rare, leading the Pentapods to believe that there was certainly nothing that could be done with mechanical science that genetic engineering could not equal or exceed. Ironically, many human scientists had expressed exactly the opposite view right up until contact with these unusual thinkers was established in the mid-23rd century. Currently, it seems clear that both are perfectly acceptable routes to the solving of most technological problems.

By combining certain aspects of these generally ignored mechanical technologies with the far more accepted biological ones, Pentapod scientists seem to have stumbled across the basic elements of the Stutterwarp drive. Although we can not be certain, it seems clear that the discovery was a product of serendipity rather than design. The exact natures of their researches at that time are unknown and will probably remain so until such time as the Pentapods deem it wise to inform us of them.

With their new Stutterwarp drive units, which the Pentapods call a "mechanical displacement organ", they saw the stars open up to them.

EXPANSION

The first Pentapod explorations of neighboring star systems, like those of mankind, must certainly have brought delight to the race. New life forms, the building blocks of future Pentapod researches, seemed to be abundant amid the stars. With each new garden world that they came across, the Pentapods found greater and greater resources for their exploitation.

One by one, they travelled to new realms and established first outposts and later full-fledged colonies under alien suns. It seems, based on my own research and that of the IEX's Dr. Jacqueline Bohranian, that they gave only passing thought to the possibility of other sentient life forms evolving among the stars. For some reason which I can not explain, they seemed to believe that their culture and existence were unique among the suns of the galaxy.

One can imagine, then, that their surprise in the spring of 2251 was far greater than that of the humans which they encountered.

FIRST CONTACT

In 2251, the Astronomischen Rechen-Institut's *Hamid* class survey vessel *Adler* and *Rayon de Lune* (her counterpart from the Institut des Etudes Exobiologiques) entered the DM + 27 28217 system on a routine exploration mission. They expected no surprises from this common red star, and the crews of both vessels were expecting a rather mundane and uneventful period.

Instead, they found an unusual, seemingly organic object in orbit around one of the worlds. As they closed on it, the xenobiologists aboard *Adler* and *Rayon de Lune* agreed that this was some form of living spacecraft. A small craft was sent over bearing representatives of both vessels (and hence, both foundations and governments) and were taken aboard the alien craft.

Over the next few weeks, an amiable relationship was attained and both races left in peace with the knowledge that they had encountered a unique and very mysterious alien culture.

NEXT ISSUE

Herr Professor Gerber has laid the groundwork for the basic evolution and background of Pentapod starship technology; next issue will feature a more specific description of the working details of such craft. The various aspects of this discussion will be presented in conjunction with a supplemental chapter for the *Star Cruiser Naval Architect's Manual* which details exactly how 2300 referees can design and construct unique Pentapod starships for their own campaigns.•

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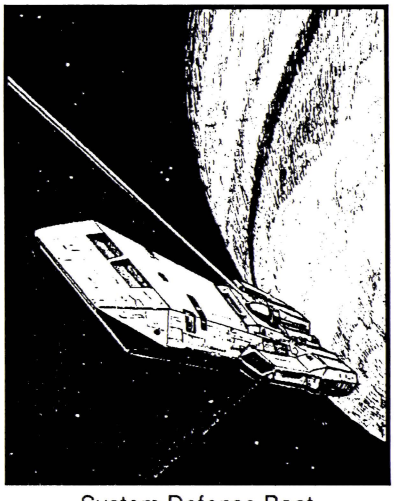

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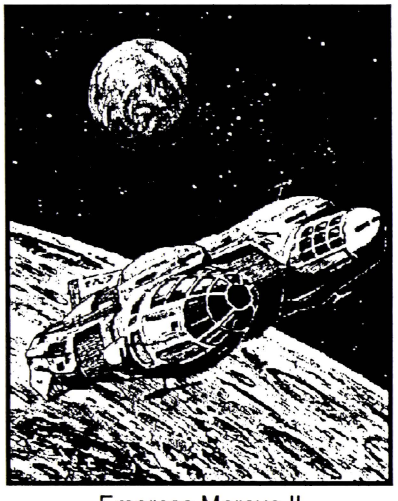

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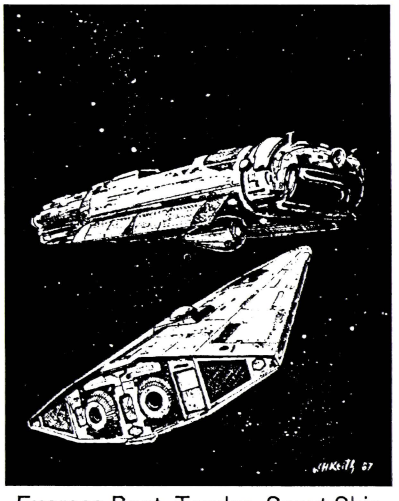

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Ptolemy Pirates
A system survey of a conservative, backwater world — with a secret!

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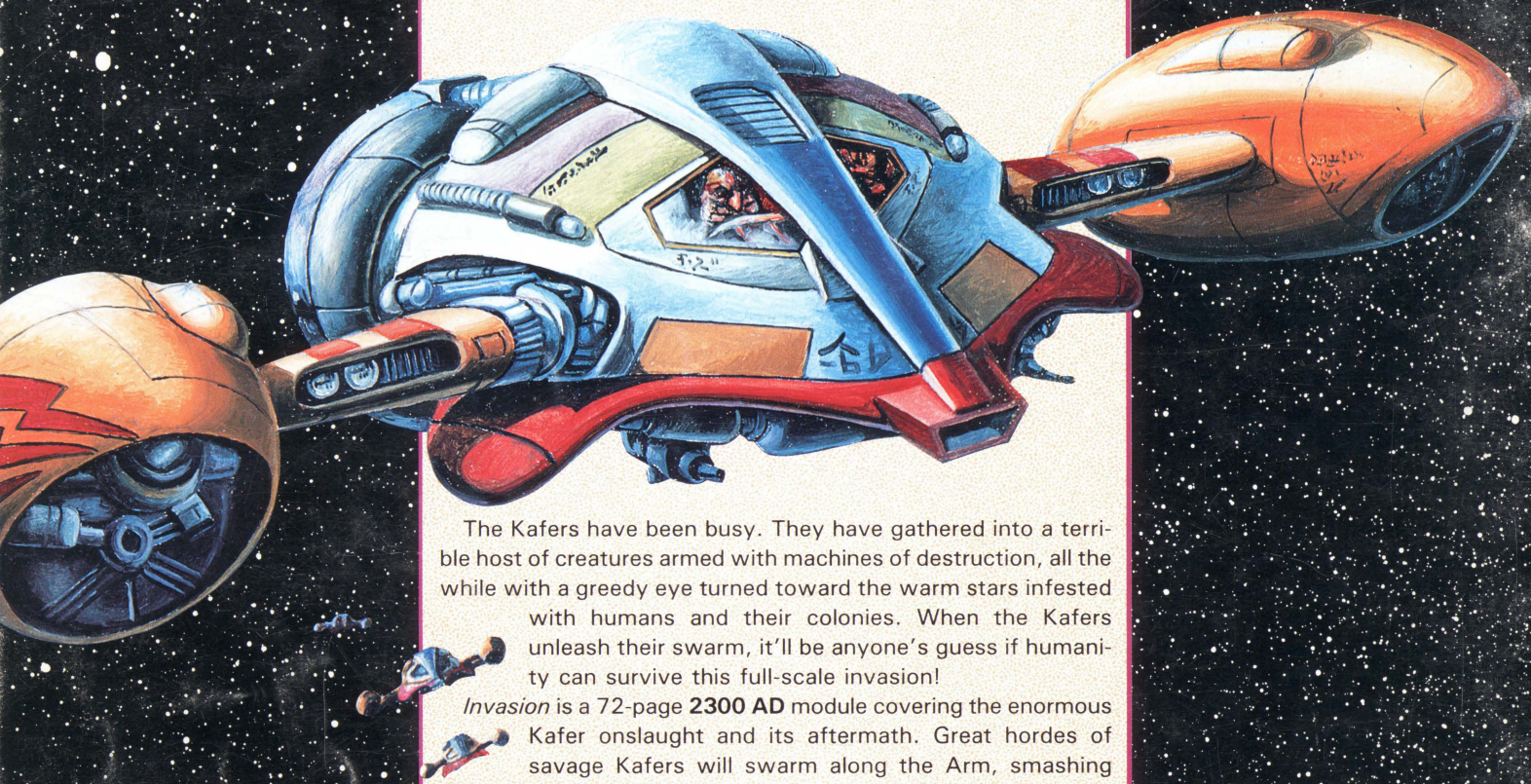
INVASION!

The Kafers Have Been Busy



The Kafers have been busy. They have gathered into a terrible host of creatures armed with machines of destruction, all the while with a greedy eye turned toward the warm stars infested with humans and their colonies. When the Kafers unleash their swarm, it'll be anyone's guess if humanity can survive this full-scale invasion!

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